BEMIDJI CITY COUNCIL
COUNCIL WORK SESSION AGENDA

Monday, April 27, 2026

City Hall
317 4th Street NW
5:30 PM

CALL TO ORDER/ROLL CALL

BUSINESS

a) 2027 Middle School Drive NW Reconstruction - Corridor Study Update

b) Possible Future Water & Sanitary Sewer Extensions

ADJOURN

CITY COUNCIL AGENDA ITEM

Meeting Date: April 27, 2026
Action Requested: 2027 Middle School Drive NW Reconstruction - Corridor Study Update
Prepared By: Samuel C. Anderson City Engineer/DPW

Background:
Back in August 2025, council approved a proposal from KLJ Engineering to complete a corridor study on Middle School Drive NW from 15th Street NW to 23rd Street NW in anticipation of road reconstruction in 2027 using federal grant funding. Over the past 8 months, KLJ has assisted city staff with data collection, analysis, public engagement, and alternative formulation in anticipation of selecting a road design for reconstruction next summer.

At tonight's meeting, Joe Devore with KLJ and city staff have prepared a presentation to walk through the traffic analysis, alternatives, public engagement, recommendation and discuss next steps. Staff's goal is to get input and direction from council before bringing a consultant proposal for design & bidding services back for approval in May.

Recommendation:
Council to provide direction on preferred alternative for 2027 Middle School Drive NW project.

Bemidji Middle School Drive Corridor Study

City Council Work Session

April 27th, 2026

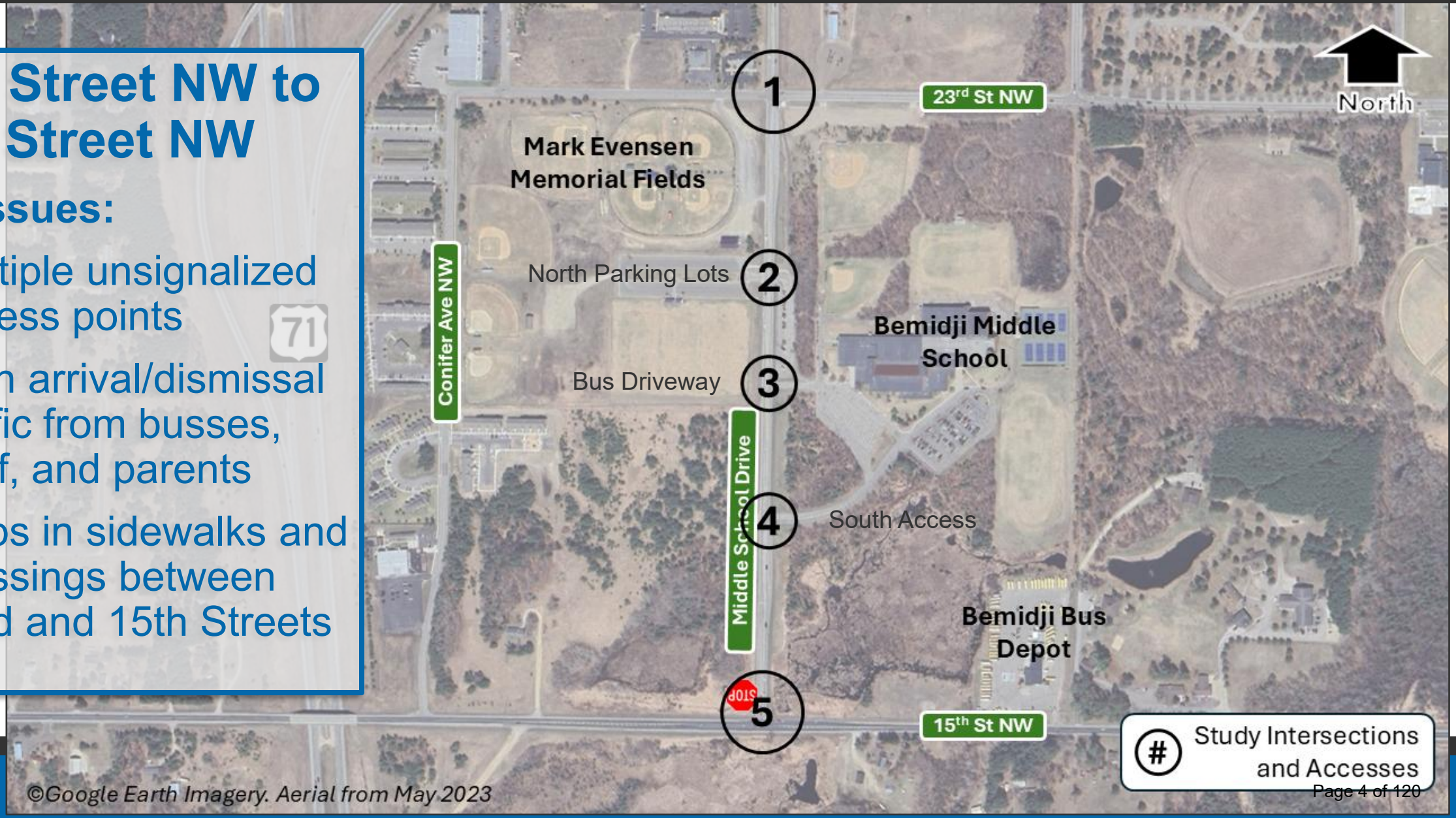
5:30 PM

Study Area

23rd Street NW to 15th Street NW

Key Issues:

- Multiple unsignalized access points
- High arrival/dismissal traffic from busses, staff, and parents
- Gaps in sidewalks and crossings between 23rd and 15th Streets



Warrant Analysis

2025 Counts collected in December after 23rd Ave Opening

Intersection w/ Middle School Drive	Existing Traffic Control	Scenario	1A	1B	2	3	MWSA
23rd Street	Roundabout	Existing (2025)	1 / 8	0 / 8	0 / 4	0 / 1	1 / 8
		Forecast (2045)	1 / 8	0 / 8	0 / 4	0 / 1	4 / 8
North Parking Lots	Side-Street Stop-Control	Existing (2025)	0 / 8	0 / 8	0 / 4	0 / 1	0 / 8
		Forecast (2045)	0 / 8	0 / 8	0 / 4	0 / 1	0 / 8
School North Access	Side-Street Stop-Control	Existing (2025)	0 / 8	0 / 8	0 / 4	0 / 1	0 / 8
		Forecast (2045)	0 / 8	0 / 8	0 / 4	0 / 1	0 / 8
School South Access	Side-Street Stop-Control	Existing (2025)	0 / 8	0 / 8	0 / 4	0 / 1	0 / 8
		Forecast (2045)	0 / 8	0 / 8	0 / 4	0 / 1	0 / 8
15th Street	Side-Street Stop-Control	Existing (2025)	1 / 8	0 / 8	0 / 4	0 / 1	0 / 8
		Forecast (2045)	2 / 8	1 / 8	0 / 4	0 / 1	0 / 8

Existing Conditions

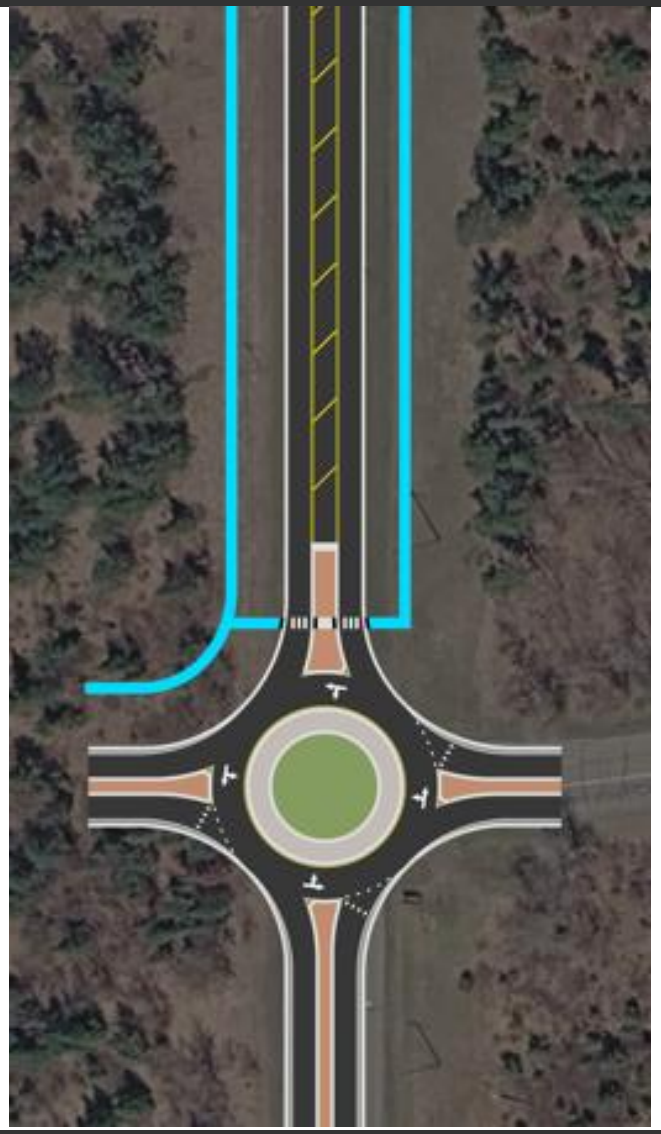
Peak	Intersection w/ Middle School Drive	Existing Control	Approach LOS (Delay)				Intersection LOS (Delay)
			EB	WB	NB	SB	
AM Peak	23rd Street	RAB	A (4.6)	A (5.3)	A (7.9)	A (5.2)	A (6.6)
	Parking Lots	SSS	C (17.3)	B (14.7)	A (0.1)	A (1.9)	C (17.3)
	School North Access	SSS	-	B (14.9)	A (0.1)	A (0.1)	B (14.9)
	School South Access	SSS	-	C (16.6)	A (0.1)	A (5.7)	C (16.6)
	15th Street	SSS	A (6.1)	A (0.1)	-	**D (30.4)**	**D (30.4)**
PM Peak Hour	23rd Street	RAB	A (4.5)	A (5.8)	A (6.4)	A (4.8)	A (5.7)
	Parking Lots	SSS	C (17.1)	C (15.0)	A (0.1)	A (0.8)	A (9.6)
	School North Access	SSS	-	B (14.4)	A (0.1)	A (0.1)	B (14.4)
	School South Access	SSS	-	**D (28.9)**	A (0.1)	A (2.0)	**D (28.9)**
	15th Street	SSS	A (5.5)	A (0.1)	-	B (13.3)	B (13.3)
PM Peak 15-Min	23rd Street	RAB	A (6.7)	B (11.9)	C (17.2)	A (6.5)	A (12.9)
	Parking Lots	SSS	C (21.0)	C (20.0)	A (0.1)	A (0.8)	C (21.0)
	School North Access	SSS	-	C (20.2)	A (0.1)	A (0.1)	C (20.2)
	School South Access	SSS	-	**F (71.9)**	A (0.1)	A (2.3)	**F (71.9)**
	15th Street	SSS	A (6.4)	A (0.1)	-	**F (84.4)**	**F (84.4)**

South Access Preferred Alternative

Single Lane Roundabout & North Ped Crossing

+ Reduce peak congestion by 60%
+ Reduced crash potential
+ Full access
+ Sufficient capacity for development
+ Geometric Speed Control in School Speed Zone
+ Corridor continuity

- Some dismissal time congestion



South Access – Other Alternatives

All-way stop or traffic signal:

- Control is not warranted for most hours of the day
- Adds unnecessary stops during off-peak
- Increases stop emissions

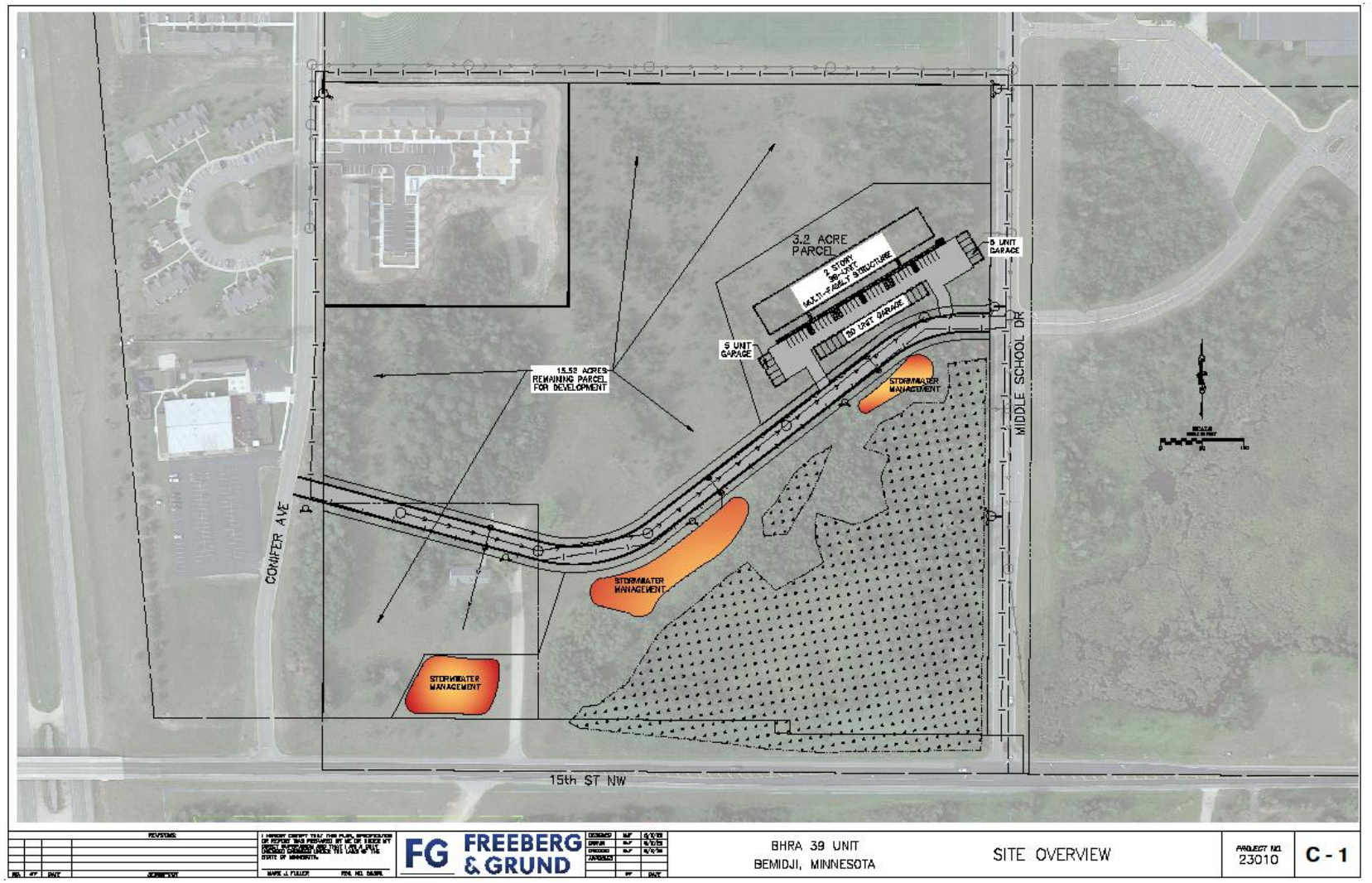
Right in right out or ¾ access:

- Limits left-out and/or left-in movements
- Increases u-turn distance
- Need for roundabout at 15th street

South Access – Future Growth

Future Development

- Proposed improvement accounts for future growth potential in nearby vicinity.



Bus Driveway – Preferred Alternative

Current Control – Faculty Dismissal & North Ped Crossing

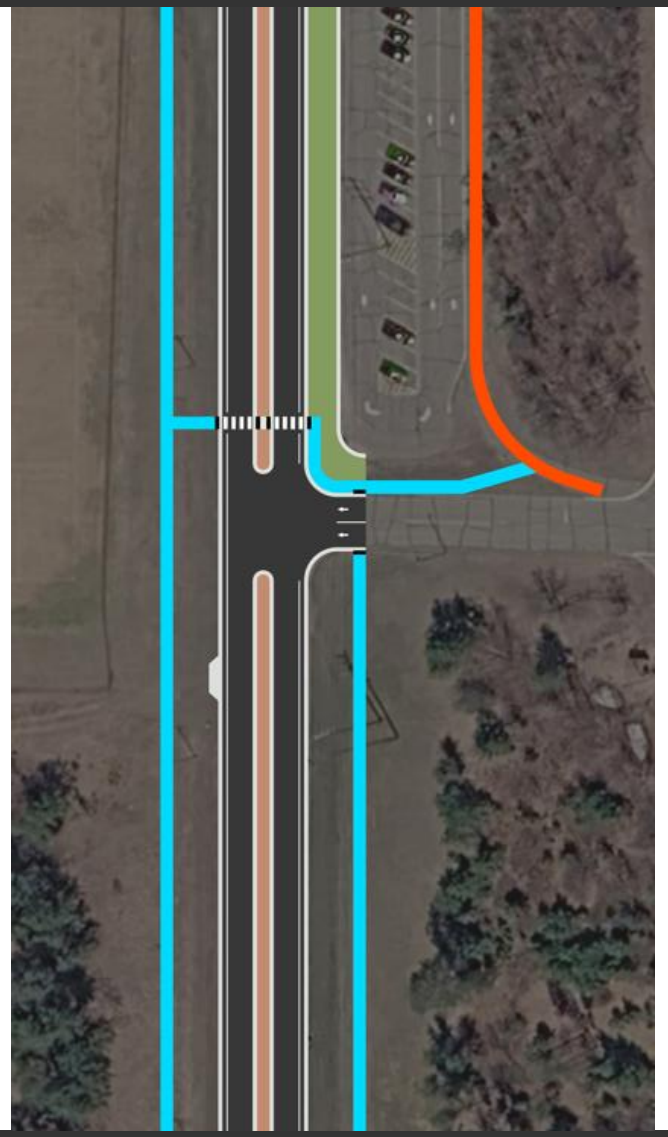
+ Continues to function acceptably

+ Bi-directional exit for busses

+ Median channelizes waiting vehicles

- Stopping traffic is needed

- Faculty safety risk blocking traffic



North Parking Lots – Alternative 1

Raised Center Median & North Ped Crossing

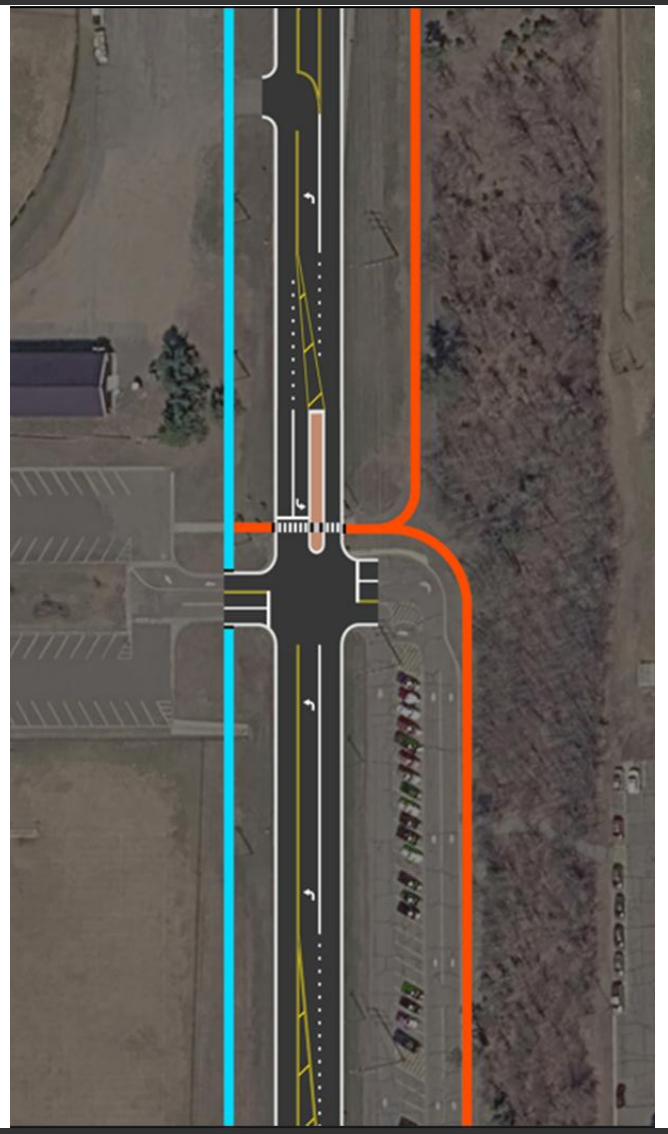
+ 2-stage crossing pedestrian refuge

+ maintains full access

- Multilane ped crossings

- Does not improve vehicle operations or crash potential

- wider roadway reduces green spaces

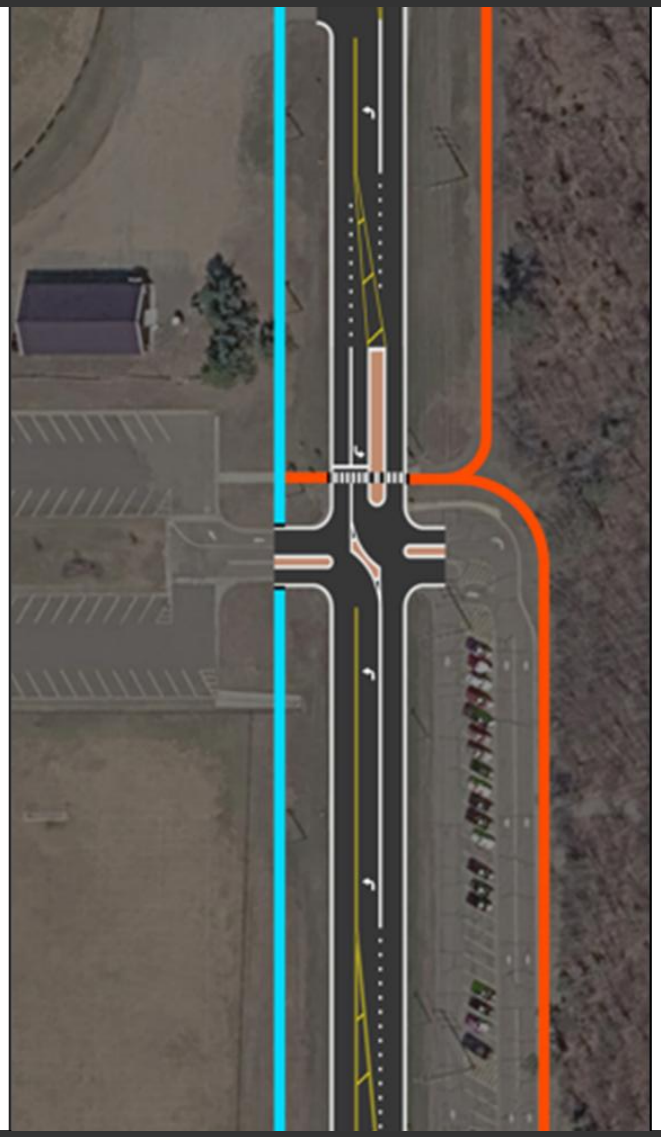


North Parking Lots – Alternative 2

3/4 Access Raised Median & North Ped Crossing

+ 2-stage crossing pedestrian refuge
+ maintains access in
+ Reduces vehicle delay
+ Reduces crash potential

- Multilane ped crossings
- Wider roadway reduces green spaces
- Initial driver confusion for exit movements

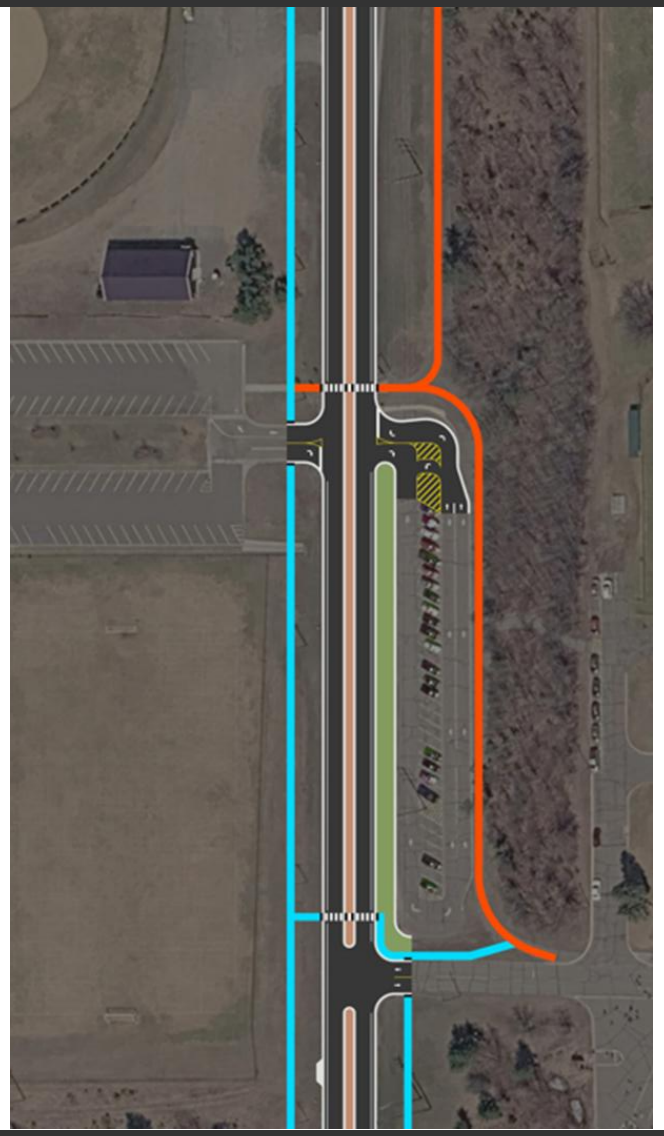


North Parking Lots – Alternative 3

Right-in Right-out Access & North Ped Crossing

+ 2-stage crossing pedestrian refuge
+ Reduces vehicle delay
+ Reduces crash potential
+ Green space potential in center median

- Initial driver confusion for entrance & exit movements
- Increased U-turns at roundabouts
- Some increased travel time



Public Engagement

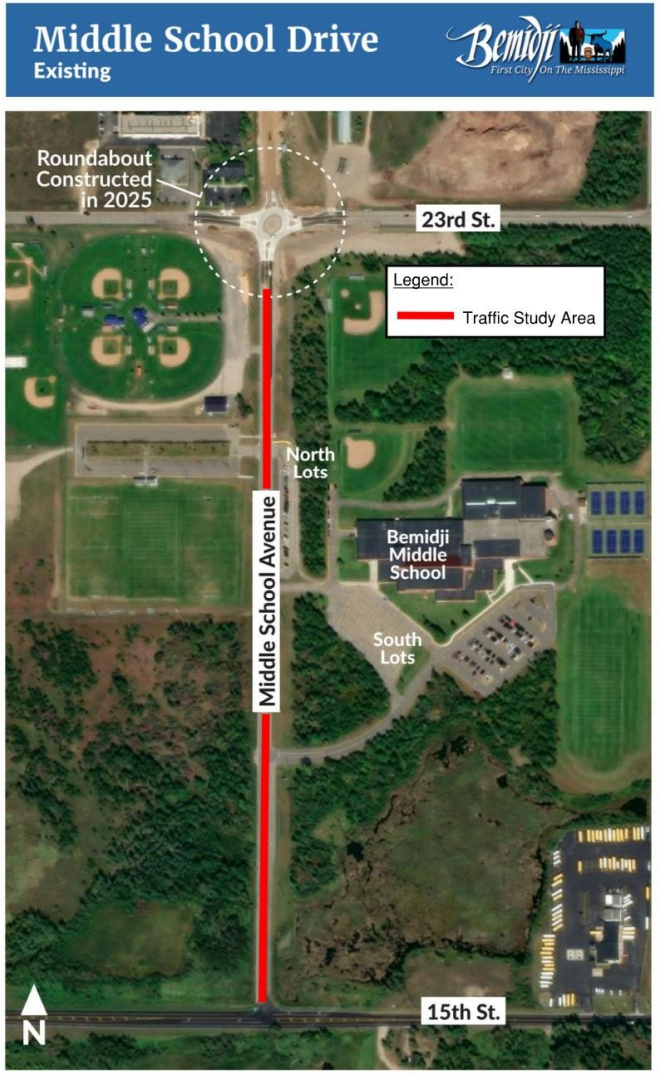
Bemidji Middle School Academic Showcase – March 26th, 2026

Public Engagement

Public Feedback Survey – April 6th – 19th

- Survey posted online using Bemidji Minnesota City Hall Facebook page
- Link posted on City of Bemidji Website

Over 200 survey responses!



Online Survey

3 Questions on North Parking Lot Options (220 Responses) with 190 General Comments

Student and pedestrian safety is the community's top priority

- Students crossing multiple lanes, standing in medians, or darting through traffic;
- Frequent suggestions included pedestrian bridges/tunnels, flashing beacons, or eliminating at-grade crossings entirely.

Peak-hour traffic congestion and circulation are viewed as the fundamental problem

- Core problem, especially conflicts between buses, parents, and through traffic
- Many feel the proposed options only partially address this or shift congestion elsewhere.

Left-turn movements are widely seen as unsafe and inefficient

- Unsafe and inefficient, particularly exiting school parking lots onto Middle School Drive and turning onto 15th Street
- Restricting left turns, right-in/right-out designs, or providing roundabout turnarounds were common ideas.

Roundabouts generate strong but divided opinions

- Some view as the safest and most effective long-term solution for traffic flow
- Others feel they confuse drivers, slow buses, perform poorly in winter, or are being overused.

Cost, prioritization, and focus of investment matter to the public

- Many question whether roadway changes are the right investment versus other community needs

North Parking Lots Survey Results

Alternative 1

Median Ped Crossing

2.5 / 5

Alternative 2

¾ Access

3.1 / 5

Alternative 3

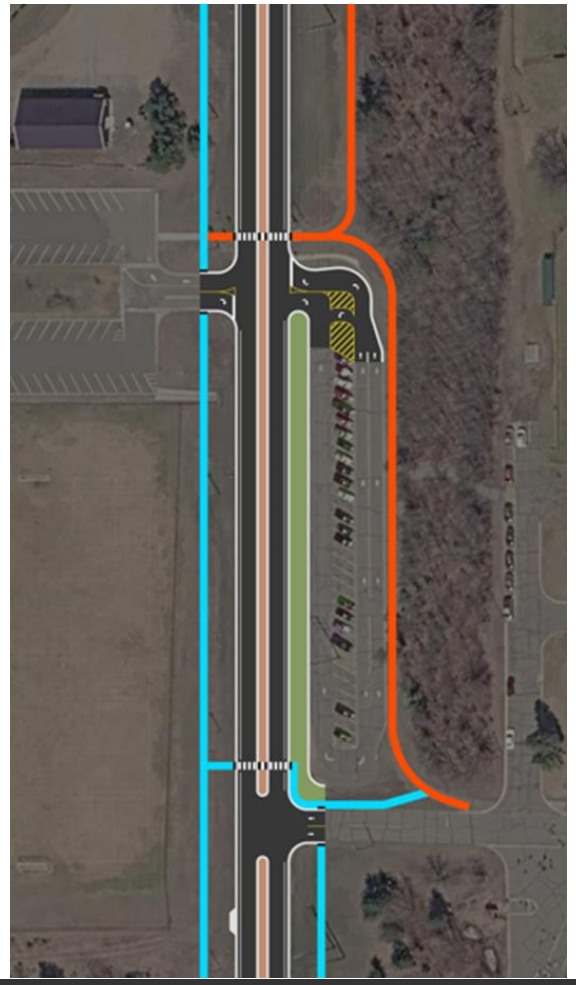
RIRO

3.4 / 5

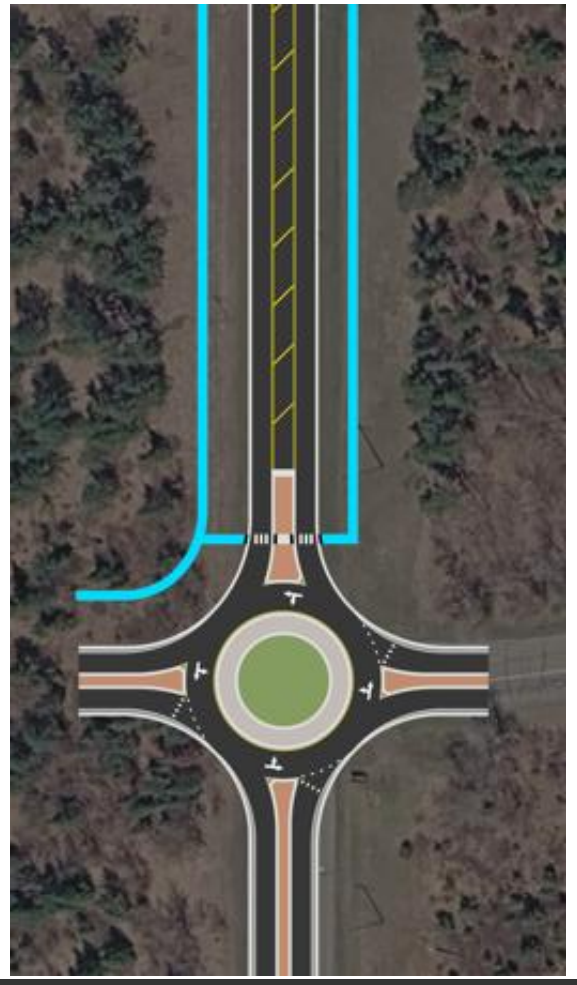
Recommendations/Questions

23rd Street Roundabout
Complete

North Access Right-in Right-out



South Access Roundabout



15th Street Long-Term Beltrami County Decision

ENGINEERING, REIMAGINED

(Draft) Middle School Drive Study

Existing & Future Conditions

Bemidji, MN

April 2026

Prepared for:

Traffic Study

Middle School Drive Study

Bemidji, MN

March 2026

Prepared for:

City of Bemidji, MN

Prepared by:

KLJ Engineering

I hereby certify that this report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Date: _____

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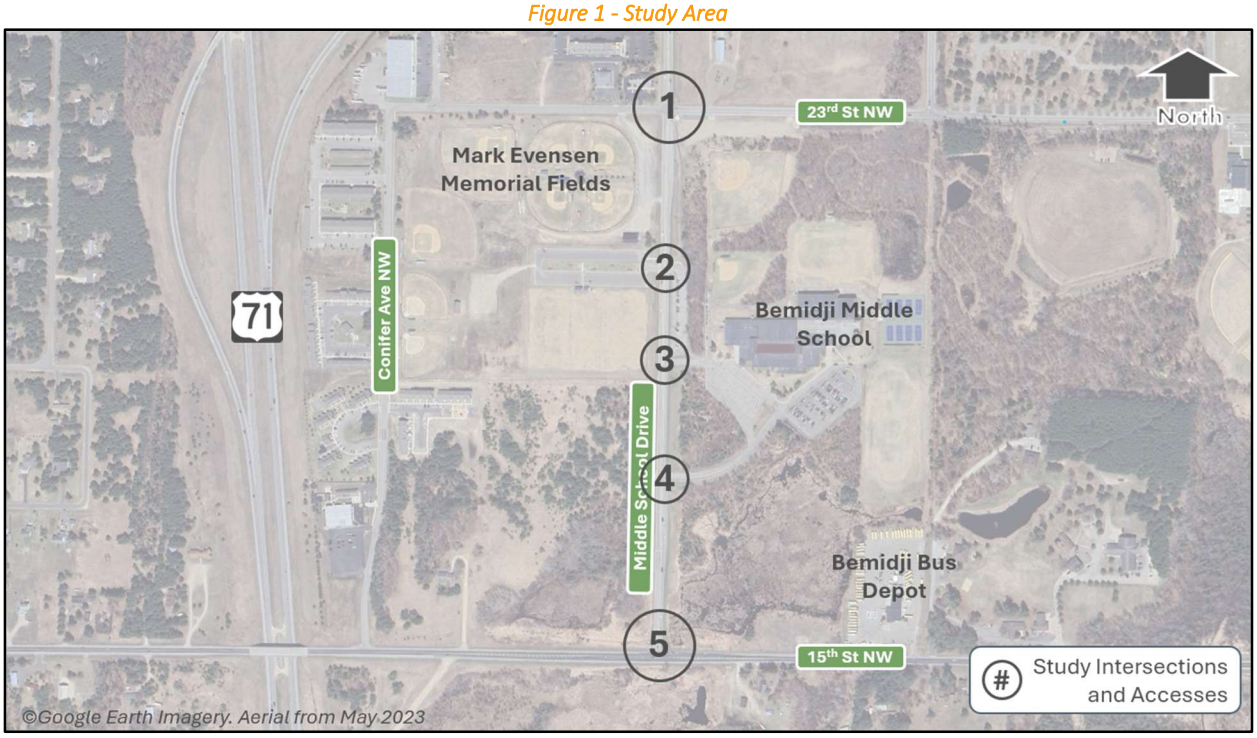
Introduction

This study has been prepared to evaluate the traffic and access study along Middle School Drive between 23rd Street NW and 15th Street NW in Bemidji, MN, as shown in **Figure 1**. The study will evaluate existing and future traffic operations and safety, support school and community engagement, and develop improvement concepts that enhance safety and circulation for all users prior to the roadways reconstruction.

Figure 1 - Study Area



Issues

The following issues have been identified in the study area:

- Multiple unsignalized access points to the Bemidji middle school campus, resulting in turning movement conflicts during peak periods.
- High-volume peak traffic from buses, school staff, and parents accessing the school simultaneously during morning arrival and afternoon dismissal.
- Limited dedicated pedestrian infrastructure, with missing sidewalk connections between 23rd and 15th Streets, and few marked crossings.

Objective

The City of Bemidji has identified safety and circulation concerns related to parents, staff, and buses using the corridor. The objective of the study is to identify and evaluate improvement strategies to address existing operational and safety deficiencies and prepare the corridor for future development. The study will assess traffic operations and safety conditions for the existing year 2025 and the projected 2045, representing a 20-year planning horizon.

Study Intersections and Accesses

The following intersections and accesses along the Middle School Drive NW corridor will be evaluated as part of this study, within the study area shown in **Figure 1**.

- (1) - 23rd Street NW (Roundabout constructed in 2025)
- (2) - Parking Lot Access between Mark Evensen Memorial Fields and Soccer Fields
- (3) – Bemidji Middle School North Access (Exit-Only)
- (4) – Bemidji Middle School South Access
- (5) - 15th Street NW (side-street stop controlled)

Existing Conditions

Middle School Drive NW

Middle School Drive NW is a north–south roadway located east of US 71 in Bemidji. The corridor is a two-lane undivided roadway that is functionally classified as a collector, as per City of Bemidji Comprehensive Plan, revised in January 2024. The posted speed limit along the corridor is 35-mph. A designated school zone reduces the speed limit to 25-mph between 7:30–9:00 AM and 3:00–4:00 PM. A pedestrian crossing with a Rectangular Rapid Flashing Beacon (RRFB) is provided to facilitate crossings between the parking lots along the corridor and shared-use paths (SUPs) on the east side of the corridor, as shown in **Figure 2**. There are no sidewalks and SUPs in the rest of the corridor. Curbs and gutters are present on both sides of the corridor.

Figure 2 - School Zone

Study Intersections

The following intersections have been selected by the project team for evaluation.

23rd Street NW and Middle School Drive NW

The intersection was previously controlled by side-street stops with stops on 23rd Street NW approaches. The intersection control was replaced with a single-lane roundabout in 2025. The existing lane configuration at the intersection approaches is as follows:

- Eastbound: One shared left-turn/through/right-turn lane.
- Westbound: One shared left-turn/through/right-turn lane.
- Northbound: One shared left-turn/through/right-turn lane.
- Southbound: One shared left-turn/through/right-turn lane.

East-West Parking lot and Middle School Drive NW Driveway

There is a dedicated pedestrian crossing on the north approach of the driveway intersection. The west parking lot is used for a variety of athletic fields around it and overflow parking for school events. The east parking lot is used as one of two pick up/drop off locations for the Middle School, designated for parents of 7th graders. The existing lane configuration at the intersection approaches is as follows:

- Eastbound: One dedicated left-turn lane (storage length 60 feet), and one dedicated right-turn lane (storage length 60 feet).
- Westbound: One shared left-turn/through lane (storage length 40 feet), and one dedicated right-turn lane (storage length 40 feet).
- Northbound: One dedicated left-turn lane (storage length 230 feet), and shared through/right-turn lane.
- Southbound: One dedicated left-turn lane (storage length 100 feet), and one shared through/right-turn lane.

North Access to Bemidji Middle School and Middle School Drive NW (Exit-Only)

The intersection is controlled by a side-street stop with the stop on the north access of Bemidji Middle School, which operates as an exit only with no entrance permitted. The existing lane configuration at the intersection approaches is as follows:

- Westbound: One dedicated left-turn lane (storage length 175 feet), and one right-turn lane.
- Northbound: One through lane.
- Southbound: One through lane.

South Access to Bemidji Middle School and Middle School Drive NW

The intersection is controlled by side-street stops with the stop on the south access of Bemidji Middle School. The existing lane configuration at the intersection approaches is as follows:

- Eastbound: No approach (roadway connection is built for potential future development).
- Westbound: One dedicated left-turn lane (storage length 110 feet) and one right-turn lane.
- Northbound: One dedicated left-turn lane (storage length 100 feet), one through lane, and one dedicated right-turn lane (storage length 300 feet).
- Southbound: One dedicated left-turn lane (storage length 300 feet), and one shared through/right-turn lane.

15th Street NW and Middle School Drive NW

The intersection is controlled by a side-street stop on the Middle School Drive NW southbound approach. The existing lane configuration at the intersection approaches is as follows:

- Eastbound: One dedicated left-turn lane (storage length 250 feet) and one through lane.
- Westbound: One through lane and one dedicated right-turn lane (storage length 200 feet).
- Southbound: One dedicated left-turn lane (storage length 500 feet), and one right-turn lane.

Traffic Volumes

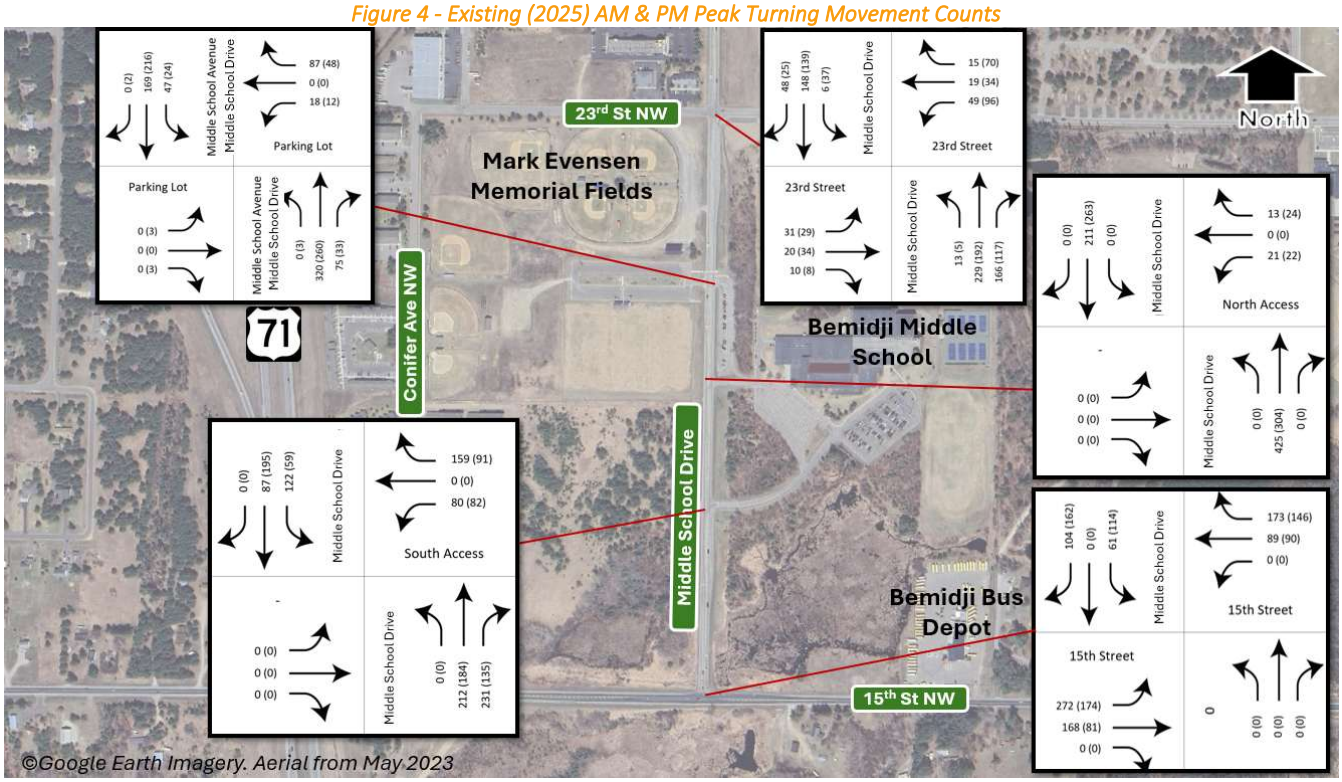
The accurate measurement of traffic, including timely traffic counts, is paramount to effective decision making. Thirteen (13) hour turning movement counts (TMC) were collected by KLJ on Thursday, December 4, 2025. Traffic counts were collected during the school year, to reflect typical school-related traffic conditions. However, since collection was not completed until the colder month of December, no pedestrian traffic was recorded. It is anticipated that there would be some pedestrian activity in the warmer months of the school year. Traffic volumes were balanced across the segment to ensure consistency and accuracy in the analysis. **Figure 3** presents the daily traffic volume in the study area, based on 2024 counts reported through MnDOT's Traffic Count Database System (TCDS) and 2025 counts collected by KLJ that were extrapolated to 24 hours.

The AM peak was observed to be between 7:30 AM and 8:30 AM, and the PM peak was observed to be between 2:45 PM and 3:45 PM. The AM peak period overlaps with the drop-off window for the middle school starting at 7:30 through the official start time of 8:35 AM. The PM peak period overlaps with the school end time of 3:20 PM, but to reflect peak school traffic exiting the school, the hour from 3:00 PM to 4:00 PM was analyzed.

The balanced base year 2025 traffic volumes in the study area for the AM and PM peaks are shown in **Figure 4**. The raw traffic volumes for the study intersections are included in **Appendix A**.

Figure 3 - 2025 Daily Traffic Volume

Figure 4 - Existing (2025) AM & PM Peak Turning Movement Counts



Future Conditions

Forecast Background Growth

"Forecast" refers to the future conditions based on a given analysis year. This scenario includes the existing 2025 traffic counts projected to the analysis year. The analysis year for this project is 2045. The projected future volumes were estimated based on a combination of school enrollment growth over the last 20 years, shown in **Figure 5**, and background growth.

Figure 5 - Bemidji Area Schools Enrollment

Pupil Enrollment In Minnesota Schools Fiscal Years 2000, 2015-2019; 20 Year Change and 5 Year Change

Dist Num	Dist Name	FY 2000 Pupils (aadm)	FY 15 Pupils (aadm)	FY 16 Pupils (aadm)	FY 17 Pupils (aadm)	FY 18 Pupils (aadm)	FY 19 Pupils (aadm)	2000-2019 20 Year Change	20 year % Change	2015-2019 5 Year Change	5 Year % Change
	Total	**832,167**	**840,073**	**847,111**	**856,878**	**865,033**	**872,561**	**40,393**	**4.9%**	**32,488**	**3.9%**
	Mpls & St. Paul	90,419	73,085	72,706	72,147	71,222	70,893	-19,525	-21.6%	-2,191	-3.0%
	Inner Ring Suburbs	86,298	88,668	88,922	89,113	89,748	89,524	3,225	3.7%	856	1.0%
	Outer Ring Suburbs	256,817	264,941	266,720	270,643	272,019	274,966	18,148	7.1%	10,025	3.8%
	Greater MN > 2,000	181,818	185,888	187,771	189,329	191,316	191,227	9,409	5.2%	5,338	2.9%
	Greater MN 1K to 2K	106,845	94,207	94,576	95,337	95,587	95,431	-11,414	-10.7%	1,223	1.3%
	Greater MN < 1,000	104,576	85,848	86,010	86,738	87,347	87,398	-17,178	-16.4%	1,550	1.8%
	Charters	7,527	47,252	50,234	53,446	56,161	60,342	52,815	701.7%	13,090	27.7%
	Statewide Adjustment	0	0	0	0	1,633	2,781	2,781	#DIV/0!	2,781	########
1	Aitkin	1,352	1,195	1,192	1,171	1,176	1,143	-209	-15.5%	-52	-4.3%
1.2	Minneapolis	45,912	35,386	35,449	35,380	34,818	34,800	-11,111	-24.2%	-586	-1.7%
2	Hill City	381	274	262	268	277	264	-117	-30.6%	-10	-3.5%
4	Mcgregor	545	424	441	463	448	468	-77	-14.1%	44	10.3%
6	South St. Paul	3,600	3,468	3,508	3,525	3,442	3,494	-106	-3.0%	26	0.7%
11	Anoka-Hennepin	40,141	37,164	37,308	38,221	38,140	38,133	-2,008	-5.0%	968	2.6%
12	Centennial	6,725	6,394	6,388	6,499	6,560	6,534	-191	-2.8%	140	2.2%
13	Columbia Heights	2,974	3,297	3,269	3,360	3,425	3,372	398	13.4%	75	2.3%
14	Fridley	2,571	2,966	3,023	3,098	3,054	3,033	463	18.0%	67	2.3%
15	St. Francis	5,775	4,621	4,545	4,519	4,413	4,358	-1,417	-24.5%	-263	-5.7%
16	Spring Lake Park	4,057	5,528	5,617	5,646	5,779	5,826	1,769	43.6%	298	5.4%
22	Detroit Lakes	2,836	2,937	2,983	3,015	3,001	2,963	127	4.5%	26	0.9%
23	Frazee-Vergas	1,243	895	896	887	916	897	-346	-27.8%	2	0.2%
25	Pine Point	50	63	63	59	62	70	20	40.1%	7	10.5%
31	Bemidji	5,314	4,967	5,103	5,079	5,064	5,094	-220	-4.1%	127	2.6%
32	Blackduck	822	619	611	609	604	595	-227	-27.6%	-24	-3.8%

While the school's enrollment does fluctuate from year to year, it has not experienced steady growth over the last 20 years. Therefore, traffic volumes to and from the school were not adjusted, and all other trips on the corridor were given an annual growth rate of 0.5%. **Table 1** shows the added through volumes on the corridor for each time period.

Table 1 - Study Area Through Volume Added

Direction	AM Peak	PM Peak
Northbound	**5**	**16**
Southbound	**15**	**17**

Trip Generation

To account for trips generated by the proposed development on the west leg of the school's south access, *ITE Trip Generation Manual* (11th Edition) was utilized to estimate additional trips, based on the land use characteristics that most closely fit the development. The ITE Land Use Code 220 – Multi-Family Housing (Low-Rise) was selected as the best fit.

Table 2 shows the AM peak, PM peak, and daily vehicular trips that the new development is expected to add to the surrounding network. The development is expected to generate 18, 22, and 263 trips during the AM peak, PM peak, and daily, respectively.

Table 2 - Trip Generation by Land Use

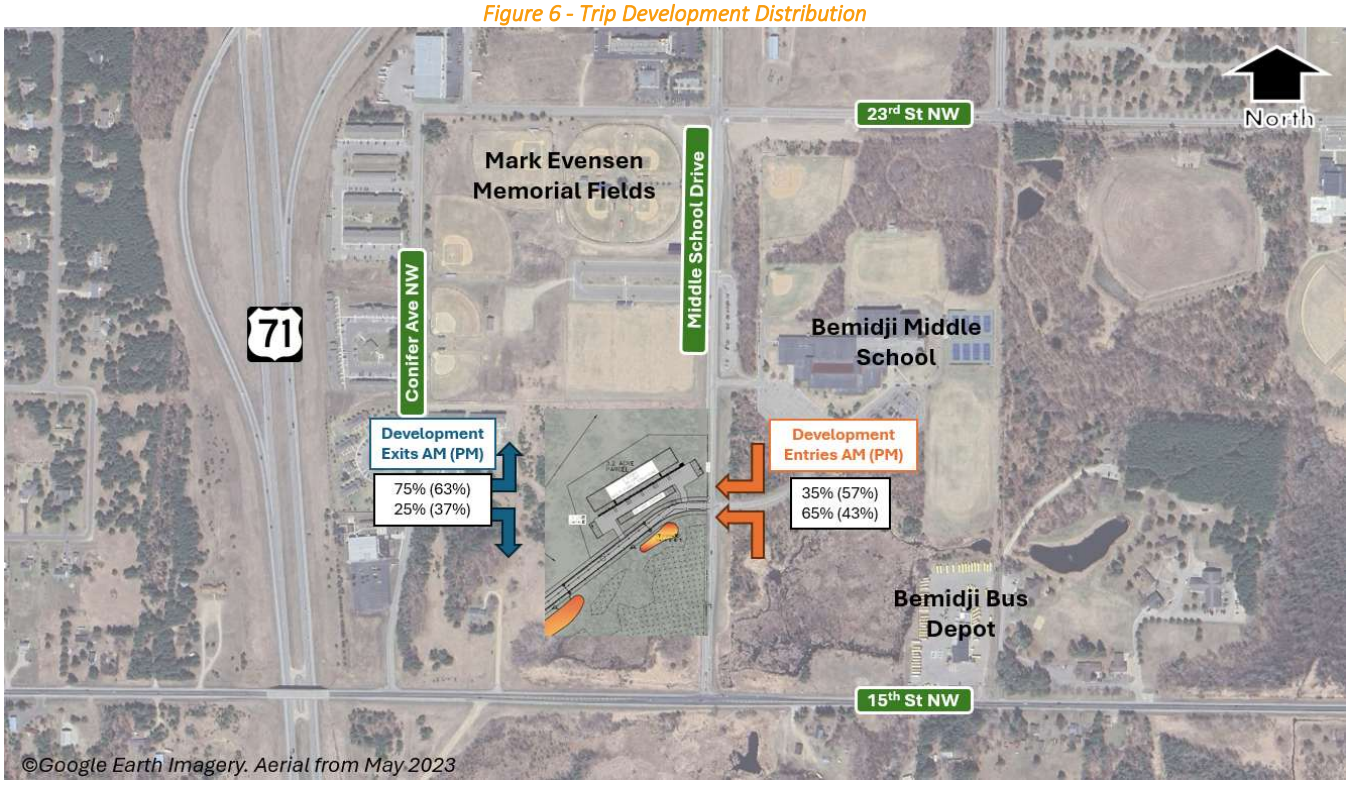
Description	ITE Code	Units		AM Peak			PM Peak			Daily		
				In	*Out*	*Total*	*In*	*Out*	*Total*	*In*	*Out*	*Total*
Multi-Family Housing	220	39	Dwellings	4	14	18	14	8	22	131	132	263

Trip Distribution and Assignment

The origins and destinations of the site-generated traffic were estimated based on prevailing travel patterns from the school accesses on the east side of the road. Trips generated by the development were assigned to the roadway network using engineering judgement, estimating the most ideal and reasonable routes between origins and destinations.

Trip distribution is shown by percentage in **Figure 6**, for trips to the development and trips away from the development, respectively.

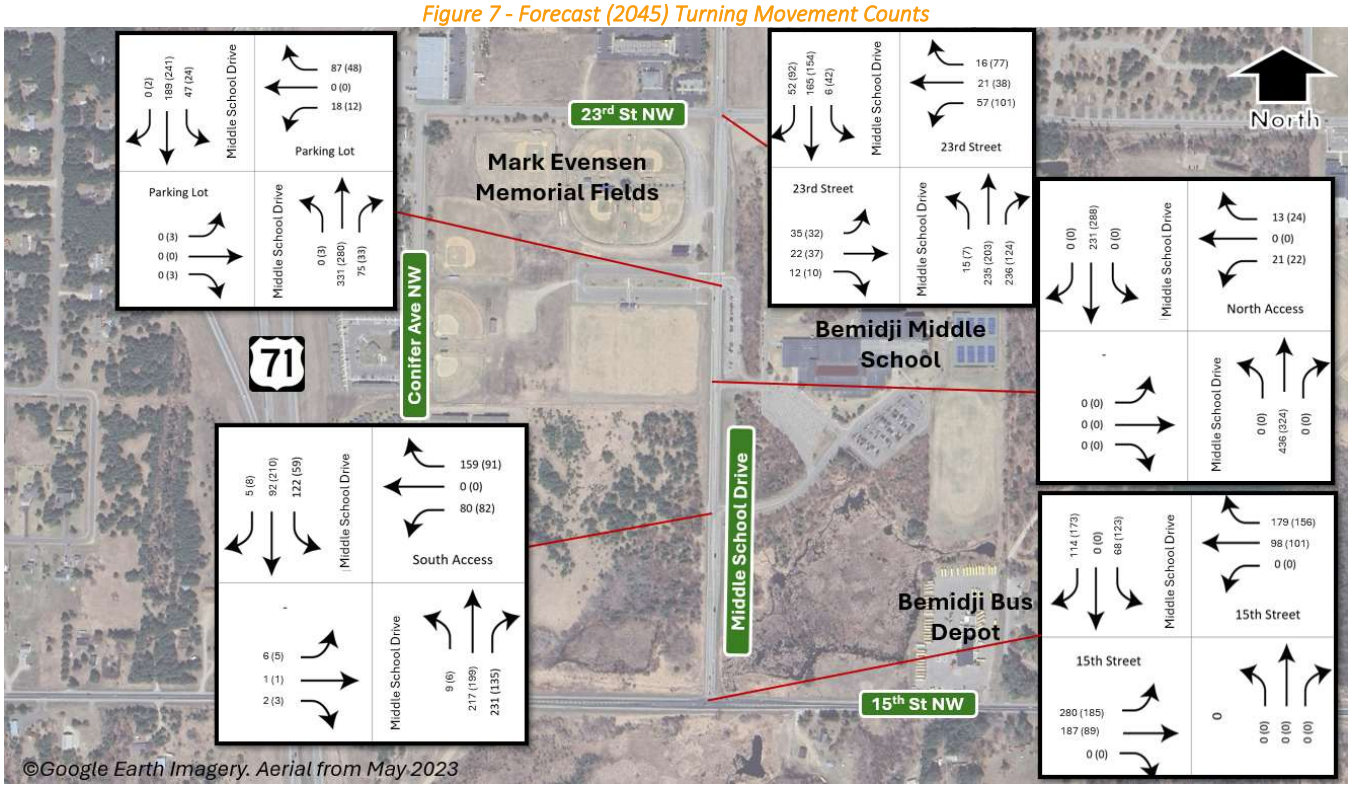
Figure 6 - Trip Development Distribution



Forecast Traffic Volumes

The forecasted volumes for the corridor based on background traffic growth and trips generated by the development for the AM and PM peaks are summarized in **Figure 7.**

Figure 7 - Forecast (2045) Turning Movement Counts



Safety Analysis

Ten years of crash records, from January 1, 2015, to December 31, 2024, for the study corridor were obtained from MnDOT's Crash Mapping Analysis Tool 2 (MnCMAT 2) dashboard along the corridor to perform a safety analysis. During the 10-year analysis period, there were no crashes reported between 23rd and 15th Street NW at any of the school accesses. There were six crashes reported at the 23rd Street intersection, but a single-lane roundabout was completed in October 2025 at this intersection. The single-lane roundabout is expected to address crash issues that were identified previously. There was one head-on incident-reported crash between two vehicles that resulted in a minor injury at 15th Street NW in 2015 that was attributed to icy conditions and distracted driving, rather than safety deficiencies at the intersection.

Traffic Operations Analysis

Traffic Operations Methodology

Vehicular Level of Service (LOS) is based on the Highway Capacity Manual 7 (HCM7) methodology and is a function of average delay per vehicle. LOS "A" represents free-flow traffic, whereas LOS "F" represents unacceptable delay. LOS "D" or better is generally considered acceptable for intersections. LOS delay thresholds are presented in **Table 3**.

Table 3 - Intersection Level of Service Thresholds

Level of Service	Average Delay / Vehicle	
	Stop, Yield, and Roundabout Intersections	Signalized Intersections
A	< 10 seconds	< 10 seconds
B	10 to 15 seconds	10 to 20 seconds
C	15 to 25 seconds	20 to 35 seconds
D	25 to 35 seconds	35 to 55 seconds
E	35 to 50 seconds	55 to 80 seconds
F	> 50 seconds	> 80 seconds

LOS for side-street stop controlled (SSSC) intersections is currently undefined by the Highway Capacity Manual (HCM). Major roadway through and right-turn movements generally experience no delay, as they are uncontrolled and do not need to yield to any conflicting movements. However, vehicles turning left or crossing the major street from the minor street can experience significant delays. For this reason, LOS assigned to SSSC intersections in this study was determined based on the delay experienced by side-street approaches and major street left-turning movements, weighted by movement volume. Roundabout controlled intersection LOS was determined based on methodology presented in the HCM.

Traffic Models

Traffic operations models were built in Synchro V12 software, with the HCM 7th Edition used to analyze results. Traffic models include geometric and operational elements of the roadway such as number of lanes, storage lengths, link distances, travel speeds, and traffic volumes. HCM 7th Edition accounts for driver behavior variability, vehicle interactions, and random arrival patterns, providing a more realistic representation of traffic operations. The results of the HCM 7th Edition analyses are displayed as Measures of Effectiveness (MOE), which for this study include delay, LOS, and 95th percentile queues.

Traffic Operations Results

The traffic operations result for each peak hour and scenario are discussed below.

Existing 2025 Conditions

The Existing 2025 Conditions results are summarized in **Table 4**. Detailed Synchro/HCM reports for existing conditions can be found in **Appendix B.**

Table 4 - Existing Traffic Operations Results (2025)

Peak	Intersection w/ Middle School Avenue	Existing Control	Approach LOS (Delay)				Intersection LOS (Delay)
			EB	*WB*	*NB*	*SB*	
AM Peak	23rd Street	RAB	A (4.6)	A (5.3)	A (7.9)	A (5.2)	A (6.6)
	Parking Lots	SSS	C (17.3)	B (14.7)	A (0.1)	A (1.9)	C (17.3)
	School North Access	SSS	-	B (14.9)	A (0.1)	A (0.1)	B (14.9)
	School South Access	SSS	-	C (16.6)	A (0.1)	A (5.7)	C (16.6)
	15th Street	SSS	A (6.1)	A (0.1)	-	**D (30.4)**	**D (30.4)**
PM Peak Hour	23rd Street	RAB	A (4.5)	A (5.8)	A (6.4)	A (4.8)	A (5.7)
	Parking Lots	SSS	C (17.1)	C (15.0)	A (0.1)	A (0.8)	A (9.6)
	School North Access	SSS	-	B (14.4)	A (0.1)	A (0.1)	B (14.4)
	School South Access	SSS	-	**D (28.9)**	A (0.1)	A (2.0)	**D (28.9)**
	15th Street	SSS	A (5.5)	A (0.1)	-	B (13.3)	B (13.3)
PM Peak 15-Min	23rd Street	RAB	A (6.7)	B (11.9)	C (17.2)	A (6.5)	A (12.9)
	Parking Lots	SSS	C (21.0)	C (20.0)	A (0.1)	A (0.8)	C (21.0)
	School North Access	SSS	-	C (20.2)	A (0.1)	A (0.1)	C (20.2)
	School South Access	SSS	-	**F (71.9)**	A (0.1)	A (2.3)	**F (71.9)**
	15th Street	SSS	A (6.4)	A (0.1)	-	**F (84.4)**	**F (84.4)**

*RAB –Roundabout; SSS – Side-Street Stop-Control. EB – Eastbound; WB – Westbound; NB – Northbound; SB – Southbound. Delay reported in seconds per vehicle. For location of the intersection, see **Figure 1**.*

All intersections and approaches operate with acceptable delay and LOS during the AM and PM Peak other than the southbound approach at 15th Street operates at LOS D during the AM Peak and the westbound approach at the school south access operating at LOS D during the PM peak. During the peak 15 minutes of school release time, delay increases to 72 seconds per vehicle (LOS F) for the westbound approach of the south access and 84.4 seconds (LOS F) for the southbound approach at 15th Street.

The 95th percentile queue lengths were evaluated to represent near worst case queuing conditions during the analysis hour. 95th percentile queueing lengths are shown below in **Table 5**.

Table 5 - Middle School Drive 95th Percentile Queue Lengths

Peak	Intersection w/ Middle School Avenue	Existing Control	95th Percentile Queue Length (veh)			
			EB	*WB*	*NB*	*SB*
AM Peak	23rd Street	RAB	0	0	3	1
	Parking Lots	SSS	0	1	0	1
	School North Access	SSS	-	1	0	0
	School South Access	SSS	-	2	0	1
	15th Street	SSS	2	0	-	3
PM Peak[1]	23rd Street	RAB	1	3	8	1
	Parking Lots	SSS	0	2	0	0
	School North Access	SSS	-	1	0	0
	School South Access	SSS	-	12	0	1
	15th Street	SSS	1	0	-	14

1) Based on PM Peak 15 Minute Analysis

Results of the 95th percentile queueing analysis show queueing issues on Middle School Avenue NW approaches. In the AM Peak, all mainline right-turns show no queueing, with the left-turn queueing analysis showing occasional 1-3 vehicle queues while opposing through traffic is passing. For minor approach movements, occasional 1-3 vehicle queues form while waiting for mainline through traffic

during the AM Peak. In the PM Peak, similar results to the AM Peak occur on the mainline, with no issues for right-turning vehicles, and minimal issues for left-turning vehicles. For minor approach movements, the PM peak sees occasional 1-2 car queues at the parking lot to the north and upwards of 12 car queues (240 feet) at the south school access, which can cause backups in the left-turn lane that prohibit vehicles from being able to enter the right-turn lane as the queueing distance slightly exceeds the right-turn lane storage length (110 feet).

Forecast 2045 Conditions

The Forecast 2045 Condition results are summarized in **Table 6**. Detailed Synchro/HCM reports for existing conditions can be found in **Appendix B**.

Table 6 - Forecast Traffic Operations Results (2045)

Peak	Intersection w/ Middle School Drive	Existing Control	Approach LOS (Delay)				Intersection LOS (Delay)
			EB	*WB*	*NB*	*SB*	
AM Peak	23rd Street	RAB	A (4.8)	A (5.6)	A (8.2)	A (5.5)	A (6.9)
	Parking Lots	SSS	C (18.2)	C (15.1)	A (0.1)	A (1.8)	C (18.2)
	School North Access	SSS	-	C (15.5)	A (0.1)	A (0.1)	C (15.5)
	School South Access	SSS	**D (25.7)**	C (20.7)	A (0.2)	A (5.2)	**D (25.7)**
	15th Street	SSS	A (6.0)	A (0.1)	-	**E (41.1)**	**E (41.1)**
PM Peak Hour	23rd Street	RAB	A (4.8)	A (6.3)	A (6.8)	A (5.1)	A (6.1)
	Parking Lots	SSS	C (18.6)	C (16.0)	A (0.1)	A (0.7)	C (18.6)
	School North Access	SSS	-	C (15.3)	A (0.1)	A (0.1)	C (15.3)
	School South Access	SSS	C (23.0)	**F (63.0)**	A (0.2)	A (1.8)	**F (63.0)**
	15th Street	SSS	A (5.7)	A (0.1)	-	B (14.4)	B (14.4)
PM Peak 15-Min	23rd Street	RAB	A (7.6)	C (15.1)	C (24.9)	A (7.4)	C (17.4)
	Parking Lots	SSS	C (22.8)	C (21.4)	A (0.1)	A (0.7)	C (22.8)
	School North Access	SSS	-	C (23.9)	A (0.1)	A (0.1)	C (23.9)
	School South Access	SSS	**D (32.0)**	**F (158.7)**	A (0.1)	A (2.1)	**F (158.7)**
	15th Street	SSS	A (6.7)	A (0.1)	-	**F (168.6)**	**F (168.6)**

RAB – Roundabout; SSS – Side-Street Stop-Control. EB – Eastbound; WB – Westbound; NB – Northbound; SB – Southbound.

With additional through vehicles and an additional leg to the school south access intersection, results throughout the corridor slightly worsen. The southbound approach at 15th Street is expected to reach a LOS E in the AM Peak, with the additional west leg at the south access operating at a LOS D in the AM Peak and LOS C in the PM Peak, while adding an additional 4 seconds of delay to the east leg in the AM Peak, and 34 seconds in the PM Peak, at a LOS F. During the peak 15 minutes of school release time, the westbound leg of the south school access sees delays of 158.7 seconds per vehicle (LOS F), with the added leg operating at LOS D (32 seconds). The southbound leg of 15th Street sees delays of 168.6 seconds per vehicle (LOS F).

The 2045 forecast 95th percentile queue lengths were evaluated to represent near worst case queuing conditions during the analysis hour. 95th percentile queueing lengths are shown below in **Table 7**.

Table 7 - Middle School Avenue 95th Percentile Queue Lengths (2045)

Peak	Intersection w/ Middle School Avenue	Existing Control	95th Percentile Queue Length (veh)			
			EB	*WB*	*NB*	*SB*
AM Peak	23rd Street	RAB	0	1	3	1
	Parking Lots	SSS	0	1	0	1
	School North Access	SSS	-	1	0	0
	School South Access	SSS	1	3	0	1
	15th Street	SSS	2	0	-	5
PM Peak[1]	23rd Street	RAB	1	4	11	2
	Parking Lots	SSS	0	2	0	0
	School North Access	SSS	-	2	0	0
	School South Access	SSS	0	17	0	1
	15th Street	SSS	1	0	-	22

1) Based on PM Peak 15 Minute Analysis

Results of the 2045 forecast 95th percentile queueing analysis continue to show queueing issues on Middle School Drive NW approaches. In the AM Peak, all mainline right-turns show no queueing, with the left-turn queueing analysis showing occasional 1-3 vehicle queues while opposing through traffic is passing. For minor approach movements, occasional 2-3 vehicle queues form while waiting for mainline through traffic during the AM Peak. In the PM Peak, similar results to the AM Peak occur on the mainline, with no issues for right-turning vehicles, and minimal issues for left-turning vehicles. For minor approach movements, the PM peak sees occasional 1-3 car queues at the parking lot to the north and upwards of 17 car queues (340 feet) at the south school access, which can cause further backups in the left-turn lane that prohibit vehicles from being able to enter the right-turn lane as the queueing distance is triple the right-turn lane storage length (110 feet).

Warrant Analysis

Signal Warrant Analysis

Vehicular Volume

The *Manual on Uniform Traffic Control Devices*[1] (MUTCD) provides guidance and standards for the installation of traffic control methods. Warrants are not a substitute for engineering judgment. Meeting a warrant for a specific traffic control device does not, in itself, justify the installation or removal of that device, as each intersection has unique characteristics that influence its operational performance and safety. The decision to install or not install a traffic control device is ultimately based on a thorough engineering study tailored to the specific intersection. However, warrant analysis thresholds serve as helpful guidelines that may indicate the potential need for a particular traffic control device.

Intersection control warrant analysis was conducted at each of the study intersections. The study intersections were analyzed for the following applicable signal warrants:

- **Warrant 1: Eight-Hour Vehicular Volume** – Specific volume thresholds must be met for at least eight hours of an average day.
  - **Warrant 1A** – This warrant applies to locations where a large volume of intersecting traffic is

[1] Federal Highway Administration. (2023). *Manual on Uniform Traffic Control Devices for Streets and Highways* (11th Edition). Washington D.C.: U.S. Department of Transportation.

the primary reason for installing a traffic signal.

- **Warrant 1B** – This warrant applies to locations at which Warrant 1a is not met and major road volumes are high enough such that minor road traffic is generally unable to enter or cross the major road.

» **Warrant 2: Four-Hour Vehicular Volume** – Specific volume thresholds must be met for at least four hours of an average day. This warrant applies to locations where the volume of intersecting traffic is the primary reason for installing a traffic signal.

» **Warrant 3: Peak Hour** – Specific volume thresholds must be met during a peak hour of an average day. This warrant applies to locations with higher proportion of volumes during peak hours, such as schools, office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.

» **Warrant 4: Pedestrian Volume** – Specific mainline volume must be met during a peak hour or over four hours that pedestrians experience excessive delay in crossing the major street. Over 100 pedestrians in an hour are needed to warrant through pedestrian volume. Collected pedestrian volumes showed minimal activity and did not meet this threshold in any hour of the day.

» **MWSA: Multi-Way Stop Application** – This warrant is to determine whether the implementation of multi-way stop control is warranted at an intersection. Specific volume thresholds must be met for at least eight hours of an average day, or five or more reported crashes of types susceptible to correction by a multi-way stop installation have occurred within one year. This warrant applies to locations where the volume of traffic on the intersecting roads is approximately equal.

Signal warrant analysis was conducted under the existing year 2025 and the forecast scenario for 2045. The results of the signal warrant analysis are shown in **Table 8**. The table shows the number of hours each warrant threshold is met, out of the total number of hours required to warrant a signal or multi-way stop. Detailed signal warrant analysis results can be found in **Appendix C**. Traffic signals are not warranted at any of the intersections of Middle School Avenue NW under Existing Conditions for Warrant 1A, 1B, 2, and 3.

Table 8 - Signal Warrant Analysis Results

Intersection w/ Middle School Drive	Existing Traffic Control	Scenario	1A	1B	2	3	MWSA
23rd Street	Roundabout	Existing (2025)	1 / 8	0 / 8	0 / 4	0 / 1	1 / 8
		Forecast (2045)	1 / 8	0 / 8	0 / 4	0 / 1	4 / 8
Parking Lots	Side-Street Stop-Control	Existing (2025)	0 / 8	0 / 8	0 / 4	0 / 1	0 / 8
		Forecast (2045)	0 / 8	0 / 8	0 / 4	0 / 1	0 / 8
School North Access	Side-Street Stop-Control	Existing (2025)	0 / 8	0 / 8	0 / 4	0 / 1	0 / 8
		Forecast (2045)	0 / 8	0 / 8	0 / 4	0 / 1	0 / 8
School South Access	Side-Street Stop-Control	Existing (2025)	0 / 8	0 / 8	0 / 4	0 / 1	0 / 8
		Forecast (2045)	0 / 8	0 / 8	0 / 4	0 / 1	0 / 8
15th Street	Side-Street Stop-Control	Existing (2025)	1 / 8	0 / 8	0 / 4	0 / 1	0 / 8
		Forecast (2045)	2 / 8	1 / 8	0 / 4	0 / 1	0 / 8

 # / # (Number of hours met / Number of hours required to meet signal warrants). For location of the intersection, see Figure 1

Mitigation

Alternatives

Based on the results of the signal warrant analysis, traffic signals were eliminated from future consideration for any of the intersections. All-way -stop-control was also considered for the south access, but was also eliminated as it would cause unnecessary stopping and delay during the off-peak hours.

Four alternatives, three at the parking lots and one at the south access, were carried forward for consideration. The alternatives were developed to further improve operational conditions under the Build scenarios as well as improve safety.

The alternative scenarios each included traffic control improvements to Middle School Drive NW and the North Parking Lots, as this intersection currently operates with acceptable delay and LOS during both the AM and PM peaks, but for overall corridor flow and safety, access management was considered at this intersection.

The alternatives scenarios included:

- **Alternative 1: Added Median Pedestrian Refuge** – This alternative would widen the roadway in order to add a raised median at the pedestrian crossing on the north leg of the intersection at the parking lots. The alternative is expected to operate the same as the current geometry as there are no changes to the physical geometry of the current driving lanes and traffic control, but does add an additional safety feature for pedestrians crossing the roadway. This alternative is shown in **Figure 8**.
- **Alternative 2: ¾ Access** – As a ¾ Access, northbound and southbound left-turn lanes at the parking lots are kept in this alternative, with a restriction on east/west approach movements enforcing right turns only. This alternative assumes a single-lane roundabout at the South Entrance to the school, so vehicles wanting to take a left turn out of the lots can make a right turn to either of the roundabout on each end to a make a u-turn. This intersection alternative is shown in **Figure 9**.
- **Alternative 3**: **Right-In Right-Out (RIRO)** –As a RIRO, all turn lanes have been eliminated, with U-turns at the northern and southern roundabout required to complete all desired left-turn movements. This alternative assumes a single-lane roundabout at the South Entrance to the school, and does not require a widening of the roadway. This configuration is shown in **Figure 10**.

After eliminating all other alternatives from consideration, the single-lane roundabout at the South access to the Middle School remains as the sole alternative for the intersection and is shown in **Figure 11**.

In addition to changes in the physical geometry of the roadway, multiple attempts were made to recirculate vehicles in order to improve operations. No attempts produced meaningful results, and it was determined that improvements to operations would require changes to the physical geometry.

Figure 8 - Alternative 1: Added Pedestrian Median Refuge at Middle School Drive NW & North Parking Lots

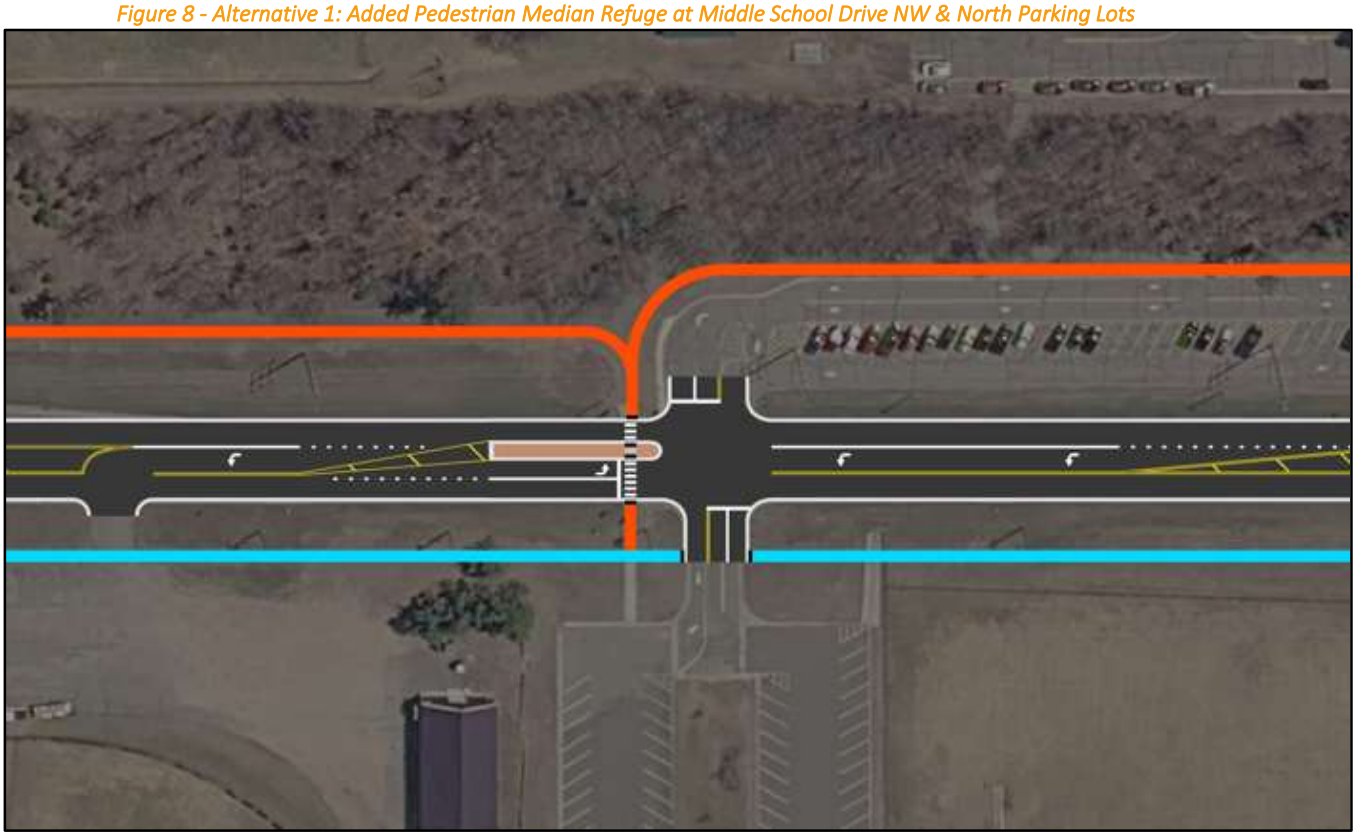


Figure 9 - Alternative 2: ¾ Access at Middle School Drive NW & North Parking Lots

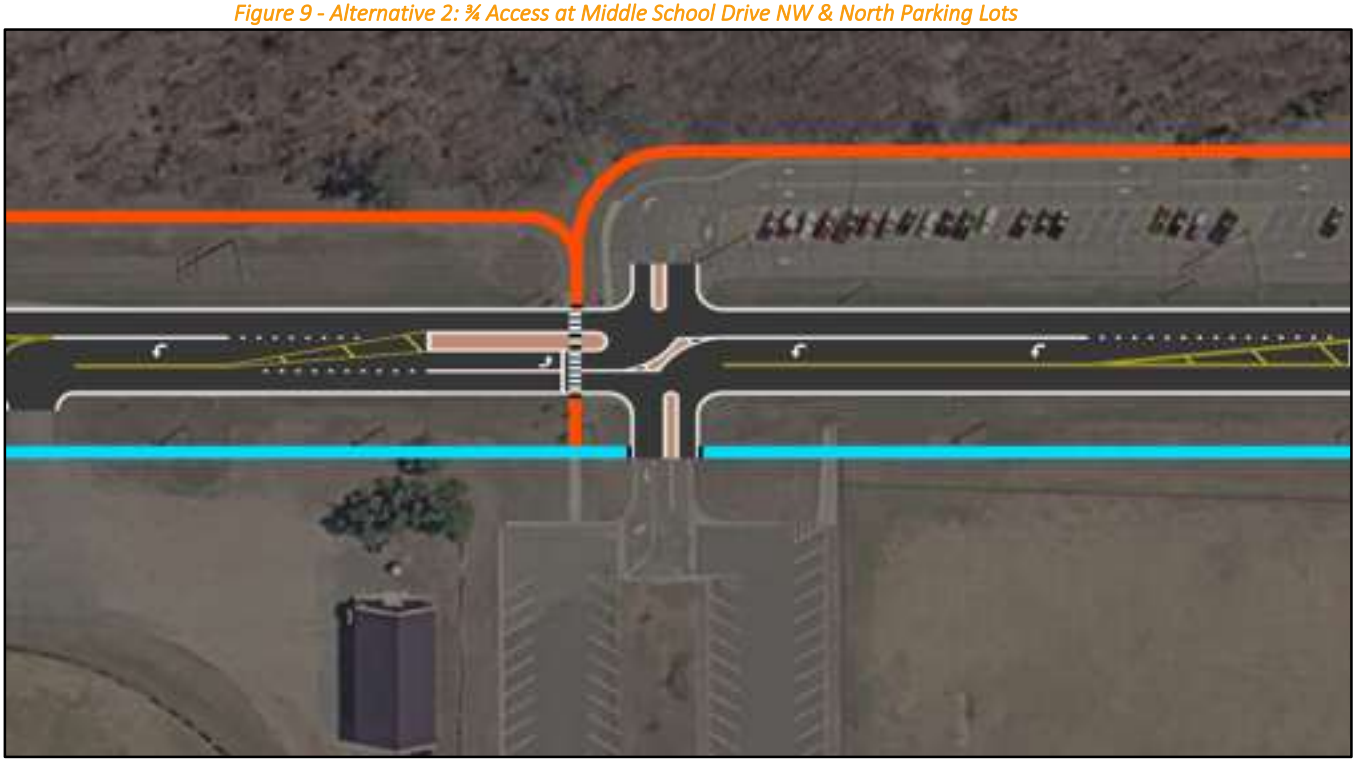


Figure 10 - RIRO Access at Middle School Drive NW & North Parking Lots

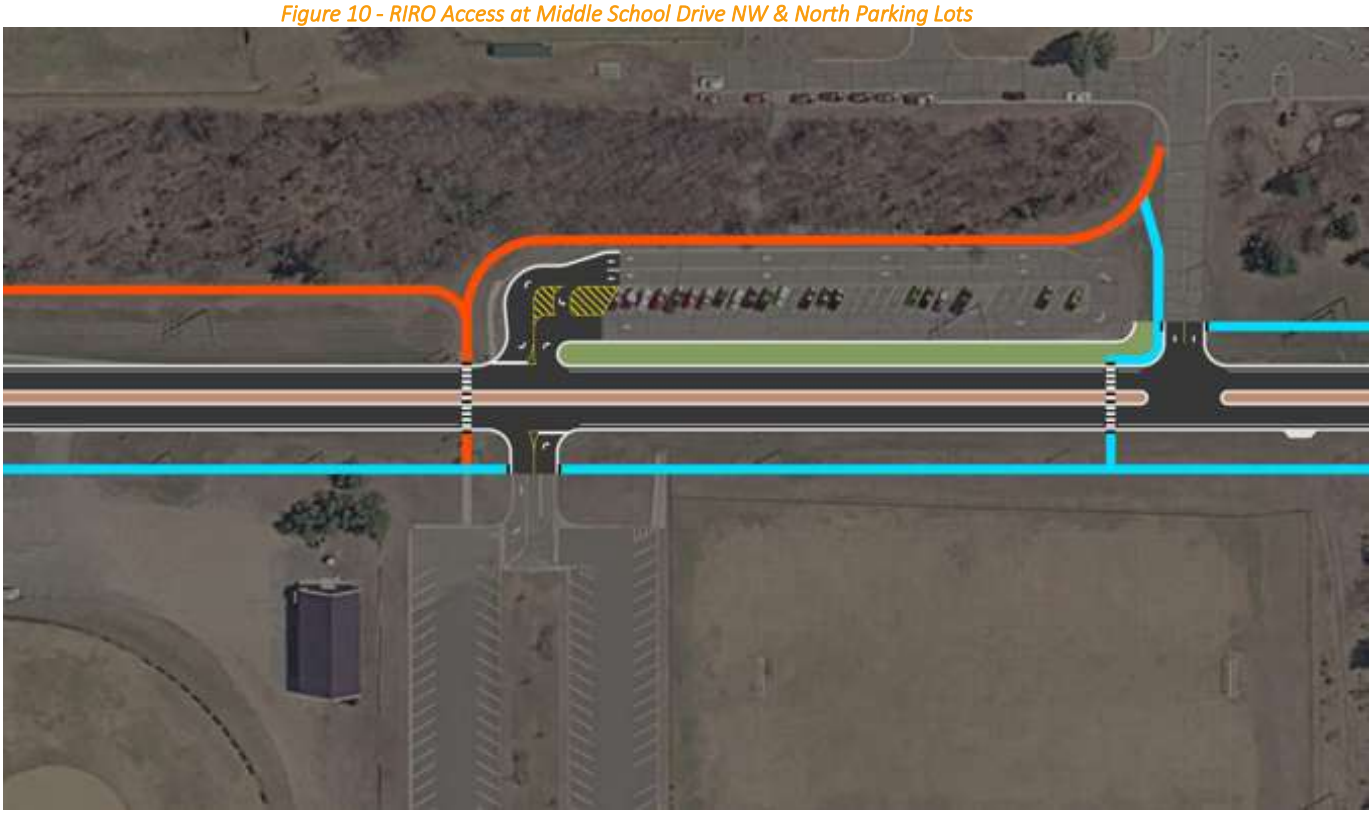
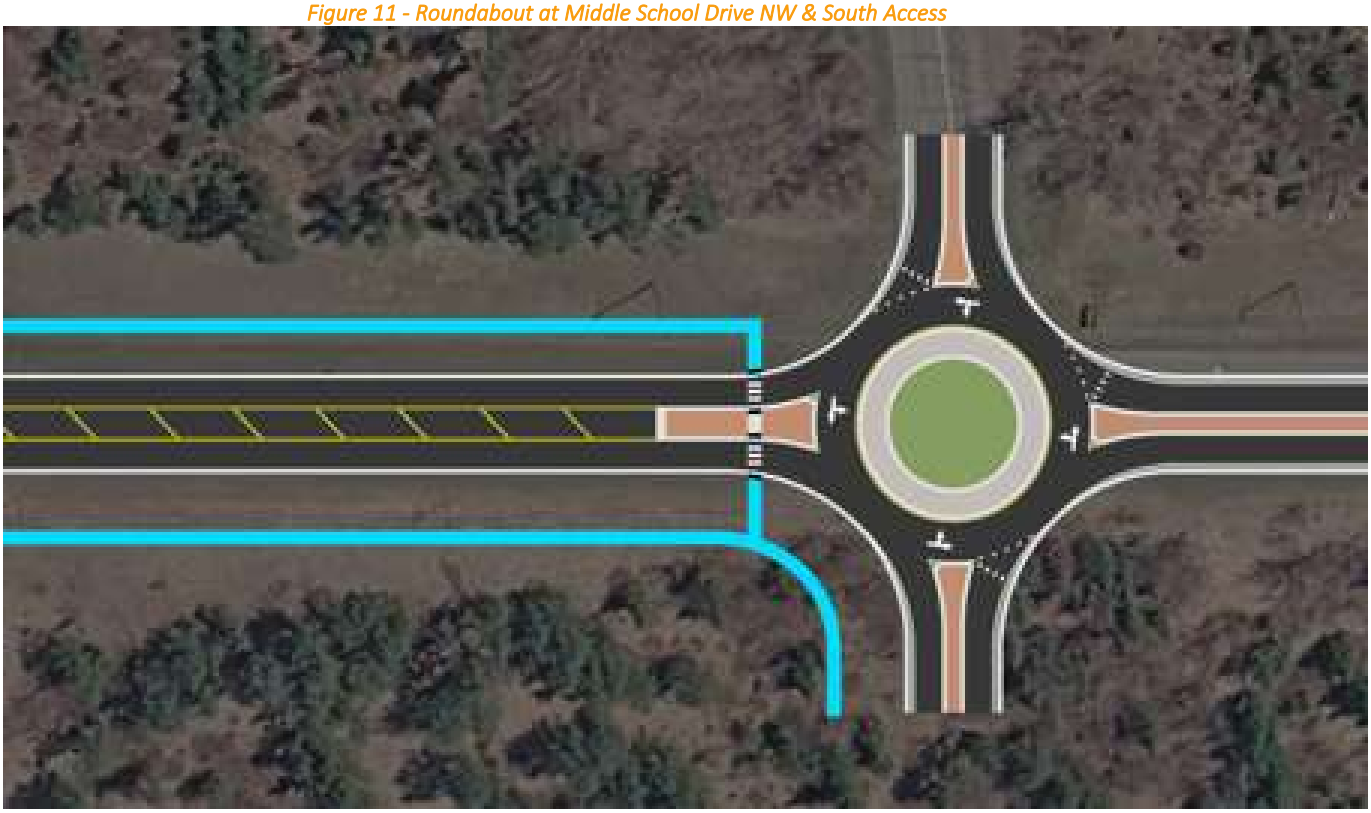


Figure 11 - Roundabout at Middle School Drive NW & South Access



Alternatives Traffic Operations Results

The traffic operations result for each alternative are discussed below. Detailed Synchro results for each alternative can be found in **Table 9**.

Table 9 - Alternatives Traffic Operations Results (Expansion 2 – 2029)

Peak	Intersection	Traffic Control*	Scenario	Approach Delay** [LOS]				Intersection Delay** [LOS]
				EB	*WB*	*NB*	*SB*	
AM Peak	Middle School Drive NW & North Parking Lots	SSS	Forecast 2045	C (18.2)	C (15.1)	A (0.1)	A (1.8)	C (18.2)
		3/4	Alt 1	A (0.4)	A (1.8)	A (0.9)	A (1.4)	A (1.8)
		RIRO	Alt 2	A (0.5)	A (3.3)	A (1.2)	A (0.5)	A (3.3)
	Middle School Drive NW & South Access	SSS	Forecast 2045	**D (25.7)**	C (20.7)	A (0.2)	A (5.2)	**D (25.7)**
		RAB	Alt 1	A (2.6)	A (1.4)	A (6.8)	A (3.7)	A (4.6)
		RAB	Alt 2	A (2.7)	A (1.1)	A (5.4)	A (3.9)	A (3.9)
PM Peak	Middle School Drive NW & North Parking Lots	SSS	Forecast 2045	C (18.6)	C (16.0)	A (0.1)	A (0.7)	C (18.6)
		3/4	Alt 1	A (0.5)	A (3.4)	A (0.6)	A (0.6)	A (3.4)
		RIRO	Alt 2	A (0.5)	A (2.1)	A (1.0)	A (0.6)	A (2.1)
	Middle School Drive NW & South Access	SSS	Forecast 2045	C (23.0)	**F (63.0)**	A (0.2)	A (1.8)	**F (63.0)**
		RAB	Alt 1	A (3.8)	C (18.0)	A (4.6)	A (5.5)	A (8.6)
		RAB	Alt 2	A (3.2)	A (3.4)	A (4.2)	A (4.3)	A (4.0)

** SSS – Side-Street Stop-Control; RAB – Roundabout.*
EB – Eastbound; WB – Westbound; NB – Northbound; SB – Southbound.
***Delay reported in seconds per vehicle*

Both the ¾ access and RIRO at the north access with the roundabout at the south access are expected to address the operational concerns under Forecast 2045 conditions, while providing additional safety benefit at both intersections.

Public Input

A public survey was sent out electronically on April 6, 2026 to the residents of Bemidji and the parents of students at Bemidji Middle School. The survey requested a rating out of five stars for each of the alternatives at the north parking lots and the corridor as a whole with a comment box for each, as well as a general comment box at the end. The survey received over 200 responses. The following is an AI generated summary of the general themes for each of the comment boxes that has been reviewed for authenticity, and the average star rating for the alternatives in **Table 10**.

Q1 – Added Median Pedestrian Refuge

- Mixed support overall; many respondents felt it **does not meaningfully reduce congestion**.
- Strong **safety concerns about students standing or waiting in the roadway**, even with a refuge.
- Fear that a median could **encourage mid-street drop-offs**, increasing risk and interruptions.

- Some support for **improved pedestrian safety**, especially given existing crossing behavior.
- Frequent concern about **children crossing three lanes of traffic**.
- Perception that the option is an **inefficient or unnecessary use of taxpayer dollars**.
- Comments that the design **fails to address left-turn issues** from parking lots.
- Worry about **loss of green space** due to roadway widening.
- Several respondents preferred an **overhead pedestrian bridge or tunnel** instead.
- General sentiment that traffic congestion—not crossing distance—is the **core safety issue**.

Q2 – 3/4 Access at the North Lots

- Generally viewed as an **incremental improvement**, but not a full solution.
- Positive feedback on **reducing left-turn conflicts** and crash risk.
- Concerns that drivers may **ignore restrictions and attempt illegal left turns**.
- Mixed opinions on pedestrian safety; some worry crossings are still unsafe.
- Seen by some as **confusing** and potentially hard for drivers to understand.
- Viewed as **better than current conditions**, but inferior to other options.
- Concerns about **bus circulation and congestion**, especially at dismissal.
- Objections to **loss of green space** and additional roadway infrastructure.
- Several respondents felt it would **push traffic toward existing roundabouts**.
- A recurring recommendation to pair this option with a **roundabout at 15th Street**.

Q3 – Right In / Right Out at the North Lots

- Widely viewed as the **most predictable and controlled option** for traffic.
- Strong support from respondents prioritizing **pedestrian safety over driver convenience**.
- Seen as **reducing crash risk** and making traffic behavior easier to anticipate.
- Common concern about **inconvenience and extra travel time**, especially for northbound drivers.
- Many respondents supported it **only if paired with a new roundabout at 15th Street**.
- Positive feedback on **bus operations and dismissal flow**, though some concerns remain.
- Some felt it was **too restrictive during non-peak hours**.
- Criticism that it **does not address underlying onsite school traffic circulation issues**.

- Continued calls for a **pedestrian bridge/tunnel** instead of at-grade crossings.
- Several respondents identified this as the **best option among those presented**.

Q4 – General Corridor Feedback

- The **most common request** was a **roundabout at 15th Street and Middle School Drive**.
- Strong and divided opinions on roundabouts: some highly supportive, others strongly opposed.
- Frequent calls for a **pedestrian bridge or tunnel**, especially near athletic fields.
- Desire for **better pedestrian connectivity**, including sidewalks and trail extensions.
- Concerns about **confusing crossing guard practices** and lack of traffic control authority.
- Requests for **flashing crosswalk lights, signals, or stoplights** to improve safety.
- Repeated concerns about **bus access, staging, and exits** contributing to congestion.
- Some respondents felt the project **addresses the wrong problem** or is unnecessary.
- Many emphasized **speeding during pickup/drop-off** as a major unresolved issue.
- General agreement that **pedestrian safety should outweigh traffic convenience**.

Table 10 - Public Survey Ratings Results

Added Median	¾ Access	RIRO
2.5/5	3.1/5	3.4/5

Recommendations

The intersection of Middle School Drive & the South Access is currently operational deficient on the east leg with the existing two-way stop-controlled configuration during school pickup hours. During a 15-minute period around school dismissal, the east leg experiences LOS F delays and queues can grow to over 200 feet. These operational issues are expected to be exacerbated by continued background growth within the study area, as well as a potential development that could be built and add a west leg to the intersection. Three alternatives for the corridor were developed to address the operational concerns and improve safety for both vehicles and pedestrians. All alternatives include a single lane roundabout at the south access intersection and raised median for pedestrian refuge.

While both the ¾ Access and RIRO alternatives are expected to improve the operational and queueing issues, the RIRO and roundabout design is expected to provide a greater improvement to delay, queueing, and safety. Safety benefits cover vehicular and multimodal, by reducing conflict points for vehicles and minimizing the number of traffic lanes that a pedestrian user needs to cross.

Summary

This study has been prepared to evaluate the traffic impacts associated with the schooltime release periods from Bemidji Middle School with impacts from an additional development on the west side of Middle School Drive at the intersection of most concern. The study investigated the No-Build and Build traffic operations in the surrounding roadway network and proposed long-term alternatives to address anticipated unacceptable intersection delay and Levels of Service. The following is the key summary of the study:

Trip Generation

- The potential new development on the west leg of Middle School Drive & South Access generates 18, 22, and 263 additional trips during the AM peak, PM peak, and daily, respectively.

Traffic Operations

Existing Conditions

- The intersection of Middle School Drive & South Access currently operates at LOS D under the PM peak and LOS F in the peak 15 minutes. This intersection LOS is primarily due to the westbound approach of this intersection, where all school pickups happen in close proximity and time, causing backups.

Forecast 2045 Conditions

- The delay and LOS at Middle School Drive & South Access is expected to worsen under Forecast 2045 conditions during the PM peak. This intersection is expected to operate at LOS F during the PM peak, under both the peak hour and peak 15 minutes.

Warrant Analysis

- None of the intersections on the corridor meet signal warrants under Existing 2025 or Forecast 2045 conditions.

Public Input Survey

- Results of the public input survey showed that RIRO had the highest average rating from the respondents. The ¾ Access alternative was a close second.

Recommendations

- Based on the operational results, safety benefits, and public input survey, the RIRO alternative at the north parking lots with a single lane roundabout at the south access is recommended.

APPENDIX A: RAW TURNING MOVEMENT COUNTS

Existing 2025 Traffic Counts

Middle School Drive

Weekday

Middle School Drive & 23rd Street

Existing (2025)

Date collected: 12/4/2025

Date printed: 12/17/2025

	NB Approach						SB Approach						EB Approach						WB Approach							
Time	**NB Utrn**	**NB Left**	**NB Thru**	**NB Right**	**South Approach Peds**	**South Approach Bikes**	**SB Utrn**	**SB Left**	**SB Thru**	**SB Right**	**North Approach Peds**	**North Approach Bikes**	**EB Utrn**	**EB Left**	**EB Thru**	**EB Right**	**West Approach Peds**	**West Approach Bikes**	**WB Utrn**	**WB Left**	**WB Thru**	**WB Right**	**East Approach Peds**	**East Approach Bikes**	**Int Total**	**Truck % by Hour**
	NBU	NBL	NBT	NBR	EB-WB	EB-WB	SBU	SBL	SBT	SBR	EB-WB	EB-WB	EBU	EBL	EBT	EBR	NB-SB	NB-SB	WBU	WBL	WBT	WBR	NB-SB	NB-SB		
0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
6:00	0	5	31	14	0	0	0	1	11	8	0	0	0	4	6	0	0	0	0	14	3	5	0	0	102	3%
7:00	2	9	169	103	0	0	0	3	147	50	0	0	0	22	15	5	0	0	0	43	14	16	0	0	598	2%
8:00	1	6	169	123	0	0	0	4	80	36	0	0	0	24	20	6	0	0	0	34	20	16	0	0	539	5%
9:00	0	8	74	40	0	0	1	10	56	22	0	0	0	19	16	5	0	0	0	25	14	26	0	0	316	4%
10:00	0	5	75	40	0	0	0	11	71	18	0	0	0	16	15	12	0	0	0	20	8	26	0	0	317	4%
11:00	0	2	81	35	0	0	0	19	67	27	0	0	0	25	13	6	0	0	0	38	13	39	0	0	365	4%
12:00	1	5	94	46	0	0	1	24	102	21	0	0	1	21	20	2	0	0	0	62	22	56	0	0	478	1%
13:00	0	1	91	29	0	0	0	21	84	22	0	0	0	12	13	3	0	0	0	31	21	58	0	0	386	2%
14:00	0	3	99	41	0	0	4	20	105	23	0	0	0	16	20	3	0	0	0	60	24	54	0	0	472	2%
15:00	0	3	208	124	0	0	2	34	123	22	0	0	0	31	37	9	2	0	0	85	35	68	0	0	783	4%
16:00	0	0	153	43	0	0	0	18	142	15	0	0	0	20	20	3	0	0	0	79	21	37	1	0	552	1%
17:00	0	4	139	50	0	0	0	20	157	10	0	0	0	17	15	5	0	0	0	83	31	38	0	0	569	1%
18:00	0	0	64	27	0	0	0	13	76	14	0	0	0	10	14	0	0	0	0	52	16	28	0	0	314	0%
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Total	4	51	1447	715	0	0	8	198	1221	288	0	0	1	237	224	59	2	0	0	626	242	467	1	0	5791	
Approach Total			2217						1715						523						1336					
Truck % By Approach			3%						2%						4%						1%					
Right Turn %				32%						17%						11%						35%				

	NB Utrn	**NB Left**	**NB Thru**	**NB Right**	**South Approach Peds**	**South Approach Bikes**	**SB Utrn**	**SB Left**	**SB Thru**	**SB Right**	**North Approach Peds**	**North Approach Bikes**	**EB Utrn**	**EB Left**	**EB Thru**	**EB Right**	**West Approach Peds**	**West Approach Bikes**	**WB Utrn**	**WB Left**	**WB Thru**	**WB Right**	**East Approach Peds**	**East Approach Bikes**	**Peak Start**	**PHF**
AM Peak	1	13	229	166	0	0	0	6	148	48	0	0	0	31	20	10	0	0	0	49	19	15	0	0	7:30:00 AM	0.78
MD Peak	1	5	94	46	0	0	1	24	102	21	0	0	1	21	20	2	0	0	0	62	22	56	0	0	12:00:00 PM	0.87
PM Peak	0	5	192	117	0	0	1	37	139	25	0	0	0	29	34	8	2	0	0	96	34	70	0	0	2:45:00 PM	0.83

Middle School Drive

Middle School Drive & Parking Lots

Existing (2025)

Date collected: 12/4/2025

Date printed: 12/17/2025

Weekday

	NB Approach						SB Approach						EB Approach						WB Approach							
Time	**NB Utrn**	**NB Left**	**NB Thru**	**NB Right**	**South Approach Peds**	**South Approach Bikes**	**SB Utrn**	**SB Left**	**SB Thru**	**SB Right**	**North Approach Peds**	**North Approach Bikes**	**EB Utrn**	**EB Left**	**EB Thru**	**EB Right**	**West Approach Peds**	**West Approach Bikes**	**WB Utrn**	**WB Left**	**WB Thru**	**WB Right**	**East Approach Peds**	**East Approach Bikes**	**Int Total**	**Truck % by Hour**
	NBU	NBL	NBT	NBR	EB-WB	EB-WB	SBU	SBL	SBT	SBR	EB-WB	EB-WB	EBU	EBL	EBT	EBR	NB-SB	NB-SB	WBU	WBL	WBT	WBR	NB-SB	NB-SB		
0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
6:00	0	0	49	3	0	0	0	1	23	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	77	4%
7:00	0	0	251	37	0	0	0	30	170	0	0	0	0	0	0	0	0	0	0	10	0	37	0	0	535	1%
8:00	0	0	245	40	0	0	0	20	105	0	0	0	0	0	0	0	0	0	0	10	0	50	0	0	470	4%
9:00	0	0	123	0	0	0	0	0	89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	212	5%
10:00	0	1	117	0	0	0	1	0	102	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	223	4%
11:00	0	0	118	0	0	0	0	1	108	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	230	4%
12:00	0	0	147	0	0	0	0	0	168	1	0	0	0	1	0	1	0	0	0	1	0	0	0	0	319	1%
13:00	0	0	120	0	0	0	0	0	118	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	240	2%
14:00	0	1	139	5	0	0	0	7	160	1	0	0	0	1	0	1	0	0	0	1	0	3	0	0	319	3%
15:00	0	3	277	29	0	0	0	19	196	2	0	0	0	2	0	3	1	0	0	14	0	51	0	0	597	4%
16:00	0	0	188	0	0	0	0	1	222	0	0	0	0	0	0	0	0	0	0	2	0	8	0	0	421	1%
17:00	0	0	191	1	0	0	0	0	242	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	437	0%
18:00	0	0	89	0	0	0	0	0	127	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	216	0%
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Total	0	5	2054	115	0	0	1	79	1830	5	0	0	0	5	0	6	1	0	0	42	0	153	0	0	4296	
Approach Total			2174						1915						12						195					
Truck % By Approach			3%						2%						0%						0%					
Right Turn %				5%						0%						55%						78%				

	NB Utrn	NB Left	NB Thru	NB Right	South Approach Peds	South Approach Bikes	SB Utrn	SB Left	SB Thru	SB Right	North Approach Peds	North Approach Bikes	EB Utrn	EB Left	EB Thru	EB Right	West Approach Peds	West Approach Bikes	WB Utrn	WB Left	WB Thru	WB Right	East Approach Peds	East Approach Bikes	Peak Start	PHF
AM Peak	0	0	320	75	0	0	0	47	169	0	0	0	0	0	0	0	0	0	0	18	0	87	0	0	7:30:00 AM	0.77
MD Peak	0	0	147	0	0	0	0	0	168	1	0	0	0	1	0	1	0	0	0	1	0	0	0	0	12:00:00 PM	0.90
PM Peak	0	3	260	33	0	0	0	24	216	2	0	0	0	3	0	3	1	0	0	12	0	48	0	0	2:45:00 PM	0.80

Middle School Drive

Middle School Drive & North School Access

Existing (2025)

Date collected: 12/4/2025

Date printed: 12/17/2025

Weekday

	NB Approach						SB Approach						EB Approach						WB Approach							
Time	**NB Utrn**	**NB Left**	**NB Thru**	**NB Right**	**South Approach Peds**	**South Approach Bikes**	**SB Utrn**	**SB Left**	**SB Thru**	**SB Right**	**North Approach Peds**	**North Approach Bikes**	**EB Utrn**	**EB Left**	**EB Thru**	**EB Right**	**West Approach Peds**	**West Approach Bikes**	**WB Utrn**	**WB Left**	**WB Thru**	**WB Right**	**East Approach Peds**	**East Approach Bikes**	**Int Total**	**Truck % by Hour**
	NBU	NBL	NBT	NBR	EB-WB	EB-WB	SBU	SBL	SBT	SBR	EB-WB	EB-WB	EBU	EBL	EBT	EBR	NB-SB	NB-SB	WBU	WBL	WBT	WBR	NB-SB	NB-SB		
0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
6:00	0	0	52	0	0	0	0	2	20	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	75	4%
7:00	0	0	272	1	0	0	0	0	180	0	0	0	0	0	0	0	0	0	0	6	0	17	0	0	476	1%
8:00	0	0	272	0	0	0	0	0	116	0	0	0	0	0	0	0	0	0	0	21	0	12	0	0	421	10%
9:00	0	0	117	2	0	0	0	0	89	0	0	0	0	0	0	0	0	0	0	1	0	6	0	0	215	5%
10:00	0	0	114	2	0	0	0	1	101	0	0	0	0	0	0	0	0	0	0	1	0	4	0	0	223	4%
11:00	0	0	118	0	0	0	0	0	110	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	229	4%
12:00	0	0	147	1	0	0	0	0	169	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	319	1%
13:00	0	0	115	0	0	0	0	0	121	0	0	0	0	0	0	0	0	0	0	2	0	6	0	0	244	2%
14:00	0	0	142	0	0	0	0	1	161	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	308	3%
15:00	0	0	278	0	0	0	0	0	213	0	1	0	0	0	0	0	0	0	0	22	0	34	0	0	548	8%
16:00	0	0	170	0	0	0	0	0	223	0	0	0	0	0	0	0	0	0	0	1	0	18	0	0	412	1%
17:00	0	0	151	0	0	0	0	0	245	0	0	0	0	0	0	0	0	0	0	9	0	42	0	0	447	1%
18:00	0	0	87	0	0	0	0	0	126	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	214	0%
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Total	0	0	2035	6	0	0	0	4	1874	0	1	0	0	0	0	0	0	0	0	67	0	144	0	0	4131	
Approach Total			2041						1879						0						211					
Truck % By Approach			2%						2%						0%						34%					
Right Turn %				0%						0%						0%						68%				

	NB Utrn	NB Left	NB Thru	NB Right	South Approach Peds	South Approach Bikes	SB Utrn	SB Left	SB Thru	SB Right	North Approach Peds	North Approach Bikes	EB Utrn	EB Left	EB Thru	EB Right	West Approach Peds	West Approach Bikes	WB Utrn	WB Left	WB Thru	WB Right	East Approach Peds	East Approach Bikes	Peak Start	PHF
AM Peak	0	0	383	0	0	0	0	0	185	0	0	0	0	0	0	0	0	0	0	21	0	13	0	0	7:30:00 AM	0.81
MD Peak	0	0	147	1	0	0	0	0	169	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	12:00:00 PM	0.90
PM Peak	0	0	274	0	0	0	0	0	231	0	1	0	0	0	0	0	0	0	0	22	0	24	0	0	2:45:00 PM	0.77

Middle School Drive

Middle School Drive & South School Access

Weekday

Existing (2025)

Date collected: 12/4/2025

Date printed: 12/17/2025

	NB Approach						SB Approach						EB Approach						WB Approach							
Time	**NB Utrn**	**NB Left**	**NB Thru**	**NB Right**	**South Approach Peds**	**South Approach Bikes**	**SB Utrn**	**SB Left**	**SB Thru**	**SB Right**	**North Approach Peds**	**North Approach Bikes**	**EB Utrn**	**EB Left**	**EB Thru**	**EB Right**	**West Approach Peds**	**West Approach Bikes**	**WB Utrn**	**WB Left**	**WB Thru**	**WB Right**	**East Approach Peds**	**East Approach Bikes**	**Int Total**	**Truck % by Hour**
	NBU	NBL	NBT	NBR	EB-WB	EB-WB	SBU	SBL	SBT	SBR	EB-WB	EB-WB	EBU	EBL	EBT	EBR	NB-SB	NB-SB	WBU	WBL	WBT	WBR	NB-SB	NB-SB		
0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
6:00	0	0	49	4	0	0	0	1	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73	4%
7:00	0	0	159	213	0	0	0	122	60	0	0	0	0	0	0	0	0	0	0	77	0	117	0	0	748	3%
8:00	0	0	175	90	0	0	0	52	88	0	0	0	0	0	0	0	0	0	0	44	0	95	0	0	544	10%
9:00	0	0	111	10	0	0	0	10	79	0	0	0	0	0	0	0	0	0	0	9	0	8	0	0	227	6%
10:00	0	0	98	21	0	0	0	15	87	0	0	0	0	0	0	0	0	0	0	10	0	19	0	0	250	4%
11:00	0	0	104	6	0	0	0	9	102	0	0	0	0	0	0	0	0	0	0	1	0	13	0	0	235	4%
12:00	0	0	133	7	0	0	0	16	156	0	0	0	0	0	0	0	0	0	0	6	0	15	0	0	333	1%
13:00	0	0	107	9	0	0	0	6	116	0	0	0	0	0	0	0	0	0	0	7	0	9	0	0	254	3%
14:00	0	0	134	25	0	0	0	20	143	0	0	0	0	0	0	0	0	0	0	9	0	8	0	0	339	4%
15:00	0	0	180	126	0	0	0	52	183	0	0	0	0	0	0	0	0	0	0	92	0	99	0	0	732	9%
16:00	0	0	157	20	0	0	0	21	202	0	0	0	0	0	0	0	0	0	0	15	0	12	0	0	427	1%
17:00	0	0	110	44	0	0	0	62	192	0	0	0	0	0	0	0	0	0	0	51	0	42	0	0	501	1%
18:00	0	0	82	14	0	0	0	2	124	0	0	0	0	0	0	0	0	0	0	9	0	5	0	0	236	0%
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Total	0	0	1599	589	0	0	0	388	1551	0	0	0	0	0	0	0	0	0	0	330	0	442	0	0	4899	
Approach Total			2188						1939						0						772					
Truck % By Approach			5%						4%						0%						3%					
Right Turn %				27%						0%						0%						57%				

	NB Utrn	NB Left	NB Thru	NB Right	South Approach Peds	South Approach Bikes	SB Utrn	SB Left	SB Thru	SB Right	North Approach Peds	North Approach Bikes	EB Utrn	EB Left	EB Thru	EB Right	West Approach Peds	West Approach Bikes	WB Utrn	WB Left	WB Thru	WB Right	East Approach Peds	East Approach Bikes	Peak Start	PHF
AM Peak	0	0	212	231	0	0	0	122	87	0	0	0	0	0	0	0	0	0	0	80	0	159	0	0	7:15:00 AM	0.76
MD Peak	0	0	133	7	0	0	0	16	156	0	0	0	0	0	0	0	0	0	0	6	0	15	0	0	12:00:00 PM	0.86
PM Peak	0	0	184	135	0	0	0	59	195	0	0	0	0	0	0	0	0	0	0	82	0	91	0	0	2:45:00 PM	0.73

Middle School Drive

Weekday

Middle School Drive & 15th Street

Existing (2025)

Date collected: 12/4/2025

Date printed: 12/17/2025

	NB Approach						SB Approach						EB Approach						WB Approach							
Time	**NB Utrn**	**NB Left**	**NB Thru**	**NB Right**	**South Approach Peds**	**South Approach Bikes**	**SB Utrn**	**SB Left**	**SB Thru**	**SB Right**	**North Approach Peds**	**North Approach Bikes**	**EB Utrn**	**EB Left**	**EB Thru**	**EB Right**	**West Approach Peds**	**West Approach Bikes**	**WB Utrn**	**WB Left**	**WB Thru**	**WB Right**	**East Approach Peds**	**East Approach Bikes**	**Int Total**	**Truck % by Hour**
	NBU	NBL	NBT	NBR	EB-WB	EB-WB	SBU	SBL	SBT	SBR	EB-WB	EB-WB	EBU	EBL	EBT	EBR	NB-SB	NB-SB	WBU	WBL	WBT	WBR	NB-SB	NB-SB		
0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
6:00	0	0	0	0	0	0	0	6	0	13	0	0	0	25	23	0	0	0	0	0	48	26	0	0	141	11%
7:00	0	0	0	0	0	0	0	44	0	93	0	0	0	221	151	0	0	0	0	0	79	157	0	0	745	4%
8:00	0	0	0	0	0	0	0	59	0	74	0	0	0	162	93	0	0	0	0	0	74	100	0	0	562	10%
9:00	0	0	0	0	0	0	0	42	0	47	0	0	0	58	58	0	0	0	0	0	47	61	0	0	313	6%
10:00	0	0	0	0	0	0	0	48	0	49	0	0	0	59	41	0	0	0	0	0	41	59	0	0	297	4%
11:00	0	0	0	0	0	0	0	46	0	57	0	0	0	43	57	0	0	0	0	0	58	67	0	0	328	5%
12:00	0	0	0	0	0	0	0	81	0	80	0	0	0	60	57	0	0	0	0	0	87	80	0	0	445	2%
13:00	0	0	0	0	0	0	0	50	0	72	0	0	0	48	45	0	0	0	0	0	49	68	0	0	332	5%
14:00	0	0	0	0	0	0	0	65	0	88	0	0	0	69	77	0	0	0	0	0	88	89	0	0	476	8%
15:00	0	0	0	0	0	0	0	115	0	158	0	0	0	175	87	0	0	0	0	0	85	130	0	0	750	9%
16:00	0	0	0	0	0	0	0	62	0	157	0	0	0	81	80	0	0	0	0	0	128	99	0	0	607	3%
17:00	0	0	0	0	0	0	0	94	0	149	0	0	0	74	79	0	0	0	1	0	94	77	0	0	568	2%
18:00	0	0	0	0	0	0	0	28	0	106	0	0	0	62	35	0	0	0	0	0	71	34	0	0	336	0%
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Total	0	0	0	0	0	0	0	740	0	1143	0	0	0	1137	883	0	0	0	1	0	949	1047	0	0	5900	
Approach Total			0						1883						2020						1997					
Truck % By Approach			0%						4%						7%						5%					
Right Turn %				0%						61%						0%						52%				

	NB Utrn	NB Left	NB Thru	NB Right	South Approach Peds	South Approach Bikes	SB Utrn	SB Left	SB Thru	SB Right	North Approach Peds	North Approach Bikes	EB Utrn	EB Left	EB Thru	EB Right	West Approach Peds	West Approach Bikes	WB Utrn	WB Left	WB Thru	WB Right	East Approach Peds	East Approach Bikes	Peak Start	PHF
AM Peak	0	0	0	0	0	0	0	61	0	104	0	0	0	272	168	0	0	0	0	0	89	173	0	0	7:15:00 AM	0.76
MD Peak	0	0	0	0	0	0	0	81	0	80	0	0	0	60	57	0	0	0	0	0	87	80	0	0	12:00:00 PM	0.85
PM Peak	0	0	0	0	0	0	0	114	0	162	0	0	0	174	81	0	0	0	0	0	90	146	0	0	2:45:00 PM	0.89

Forecast 2045 Traffic Counts

Middle School Avenue

Weekday

Middle School Avenue & 23rd Street

Future (2045)

Date collected: 12/4/2025

Date printed: 1/9/2026

	NB Approach						SB Approach						EB Approach						WB Approach							
Time	**NB Utrn**	**NB Left**	**NB Thru**	**NB Right**	**South Approach Peds**	**South Approach Bikes**	**SB Utrn**	**SB Left**	**SB Thru**	**SB Right**	**North Approach Peds**	**North Approach Bikes**	**EB Utrn**	**EB Left**	**EB Thru**	**EB Right**	**West Approach Peds**	**West Approach Bikes**	**WB Utrn**	**WB Left**	**WB Thru**	**WB Right**	**East Approach Peds**	**East Approach Bikes**	**Int Total**	**Truck % by Hour**
	NBU	NBL	NBT	NBR	EB-WB	EB-WB	SBU	SBL	SBT	SBR	EB-WB	EB-WB	EBU	EBL	EBT	EBR	NB-SB	NB-SB	WBU	WBL	WBT	WBR	NB-SB	NB-SB		
0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
6:00	0	6	34	14	0	0	0	1	12	8	0	0	0	4	6	0	0	0	0	16	3	5	0	0	109	3%
7:00	2	12	185	114	0	0	0	3	168	55	0	0	0	24	16	7	0	0	0	49	15	18	0	0	668	2%
8:00	1	8	185	136	0	0	0	4	92	40	0	0	0	27	22	8	0	0	0	38	22	17	0	0	600	5%
9:00	0	9	82	45	0	0	1	10	64	25	0	0	0	21	17	6	0	0	0	29	15	29	0	0	353	4%
10:00	0	6	83	45	0	0	0	12	81	19	0	0	0	18	16	15	0	0	0	23	8	29	0	0	355	4%
11:00	0	2	89	39	0	0	0	22	77	31	0	0	0	28	14	8	0	0	0	43	14	43	0	0	410	4%
12:00	1	6	103	50	0	0	1	27	117	23	0	0	1	24	22	2	0	0	0	70	25	62	0	0	534	1%
13:00	0	1	100	31	0	0	0	23	96	25	0	0	0	12	13	4	0	0	0	35	24	64	0	0	428	2%
14:00	0	4	107	46	0	0	4	22	120	26	0	0	0	17	22	4	0	0	0	67	27	59	0	0	525	2%
15:00	0	4	228	137	0	0	2	39	140	25	0	0	0	35	41	11	2	0	0	96	39	75	0	0	874	4%
16:00	0	0	167	49	0	0	0	20	162	16	0	0	0	22	22	3	0	0	0	89	24	41	1	0	616	1%
17:00	0	5	151	54	0	0	0	23	179	10	0	0	0	19	17	7	0	0	0	95	34	43	0	0	637	1%
18:00	0	0	71	31	0	0	0	15	87	15	0	0	0	11	15	0	0	0	0	59	18	31	0	0	353	0%
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Total	4	63	1585	791	0	0	8	221	1395	318	0	0	1	262	243	75	2	0	0	709	268	516	1	0	6462	
Approach Total			2443						1942						583						1494					
Forecasted Approach ADT			5,600						5,220						1,490						3,330					
Existing Approach ADT			5,000						4,690						1,340						3,000					
% Change in ADT (annual)			0.57%						0.54%						0.53%						0.52%					
Truck % By Approach			3%						2%						3%						1%					
Right Turn %				32%						16%						13%						35%				

	NB Utrn	**NB Left**	**NB Thru**	**NB Right**	**South Approach Peds**	**South Approach Bikes**	**SB Utrn**	**SB Left**	**SB Thru**	**SB Right**	**North Approach Peds**	**North Approach Bikes**	**EB Utrn**	**EB Left**	**EB Thru**	**EB Right**	**West Approach Peds**	**West Approach Bikes**	**WB Utrn**	**WB Left**	**WB Thru**	**WB Right**	**East Approach Peds**	**East Approach Bikes**	**Peak Start**	**PHF**
AM Peak	1	18	251	183	0	0	0	6	169	52	0	0	0	35	22	14	0	0	0	55	21	16	0	0	7:30:00 AM	0.78
MD Peak	1	6	103	50	0	0	1	27	117	23	0	0	1	24	22	2	0	0	0	70	25	62	0	0	#########	0.87
PM Peak	0	7	210	129	0	0	1	42	158	29	0	0	0	32	37	10	2	0	0	109	38	77	0	0	2:45:00 PM	0.83

Middle School Avenue

Weekday

Middle School Avenue & Parking Lots

Future (2045)

Date collected: 12/4/2025

Date printed: 1/9/2026

	NB Approach						SB Approach						EB Approach						WB Approach							
Time	**NB Utrn**	**NB Left**	**NB Thru**	**NB Right**	**South Approach Peds**	**South Approach Bikes**	**SB Utrn**	**SB Left**	**SB Thru**	**SB Right**	**North Approach Peds**	**North Approach Bikes**	**EB Utrn**	**EB Left**	**EB Thru**	**EB Right**	**West Approach Peds**	**West Approach Bikes**	**WB Utrn**	**WB Left**	**WB Thru**	**WB Right**	**East Approach Peds**	**East Approach Bikes**	**Int Total**	**Truck % by Hour**
	NBU	NBL	NBT	NBR	EB-WB	EB-WB	SBU	SBL	SBT	SBR	EB-WB	EB-WB	EBU	EBL	EBT	EBR	NB-SB	NB-SB	WBU	WBL	WBT	WBR	NB-SB	NB-SB		
0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
6:00	0	0	51	3	0	0	0	1	25	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	81	4%
7:00	0	0	263	37	0	0	0	30	182	0	0	0	0	0	0	0	0	0	0	10	0	37	0	0	559	1%
8:00	0	0	257	40	0	0	0	20	113	0	0	0	0	0	0	0	0	0	0	10	0	50	0	0	490	4%
9:00	0	0	129	0	0	0	0	0	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	224	5%
10:00	0	1	122	0	0	0	1	0	109	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	235	4%
11:00	0	0	123	0	0	0	0	1	116	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	243	4%
12:00	0	0	155	0	0	0	0	0	180	1	0	0	0	1	0	1	0	0	0	1	0	0	0	0	339	1%
13:00	0	0	126	0	0	0	0	0	126	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	254	2%
14:00	0	1	146	5	0	0	0	7	172	1	0	0	0	1	0	1	0	0	0	1	0	3	0	0	338	3%
15:00	0	3	291	29	0	0	0	19	210	2	0	0	0	2	0	3	1	0	0	14	0	51	0	0	625	4%
16:00	0	0	197	0	0	0	0	1	237	0	0	0	0	0	0	0	0	0	0	2	0	8	0	0	445	1%
17:00	0	0	199	1	0	0	0	0	260	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	463	0%
18:00	0	0	93	0	0	0	0	0	137	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	230	0%
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Total	0	5	2152	115	0	0	1	79	1962	5	0	0	0	5	0	6	1	0	0	42	0	153	0	0	4526	
Approach Total			2272						2047						12						195					
Forecasted Approach ADT			5,190						5,280						30						470					
Existing Approach ADT			4,910						5,000						30						470					
% Change in ADT (annual)			0.28%						0.27%						0.00%						0.00%					
Truck % By Approach			3%						2%						0%						0%					
Right Turn %				5%						0%						55%						78%				

	NB Utrn	**NB Left**	**NB Thru**	**NB Right**	**South Approach Peds**	**South Approach Bikes**	**SB Utrn**	**SB Left**	**SB Thru**	**SB Right**	**North Approach Peds**	**North Approach Bikes**	**EB Utrn**	**EB Left**	**EB Thru**	**EB Right**	**West Approach Peds**	**West Approach Bikes**	**WB Utrn**	**WB Left**	**WB Thru**	**WB Right**	**East Approach Peds**	**East Approach Bikes**	**Peak Start**	**PHF**
AM Peak	0	0	335	75	0	0	0	47	182	0	0	0	0	0	0	0	0	0	0	18	0	87	0	0	7:30:00 AM	0.77
MD Peak	0	0	155	0	0	0	0	0	180	1	0	0	0	1	0	1	0	0	0	1	0	0	0	0	#########	0.90
PM Peak	0	3	273	33	0	0	0	24	232	2	0	0	0	3	0	3	1	0	0	12	0	48	0	0	2:45:00 PM	0.80

Middle School Avenue

Weekday

Middle School Avenue & North School Access

Future (2045)

Date collected: 12/4/2025

Date printed: 1/9/2026

	NB Approach						SB Approach						EB Approach						WB Approach							
Time	**NB Utrn**	**NB Left**	**NB Thru**	**NB Right**	**South Approach Peds**	**South Approach Bikes**	**SB Utrn**	**SB Left**	**SB Thru**	**SB Right**	**North Approach Peds**	**North Approach Bikes**	**EB Utrn**	**EB Left**	**EB Thru**	**EB Right**	**West Approach Peds**	**West Approach Bikes**	**WB Utrn**	**WB Left**	**WB Thru**	**WB Right**	**East Approach Peds**	**East Approach Bikes**	**Int Total**	**Truck % by Hour**
	NBU	NBL	NBT	NBR	EB-WB	EB-WB	SBU	SBL	SBT	SBR	EB-WB	EB-WB	EBU	EBL	EBT	EBR	NB-SB	NB-SB	WBU	WBL	WBT	WBR	NB-SB	NB-SB		
0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
6:00	0	0	58	0	0	0	0	2	23	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	84	4%
7:00	0	0	303	1	0	0	0	0	206	0	0	0	0	0	0	0	0	0	0	6	0	17	0	0	533	1%
8:00	0	0	302	0	0	0	0	0	132	0	0	0	0	0	0	0	0	0	0	21	0	12	0	0	467	10%
9:00	0	0	130	2	0	0	0	0	102	0	0	0	0	0	0	0	0	0	0	1	0	6	0	0	241	5%
10:00	0	0	126	2	0	0	0	1	115	0	0	0	0	0	0	0	0	0	0	1	0	4	0	0	249	4%
11:00	0	0	131	0	0	0	0	0	126	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	258	4%
12:00	0	0	163	1	0	0	0	0	194	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	360	1%
13:00	0	0	128	0	0	0	0	0	139	0	0	0	0	0	0	0	0	0	0	2	0	6	0	0	275	2%
14:00	0	0	157	0	0	0	0	1	183	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	345	3%
15:00	0	0	309	0	0	0	0	0	243	0	1	0	0	0	0	0	0	0	0	22	0	34	0	0	609	8%
16:00	0	0	189	0	0	0	0	0	255	0	0	0	0	0	0	0	0	0	0	1	0	18	0	0	463	1%
17:00	0	0	168	0	0	0	0	0	279	0	0	0	0	0	0	0	0	0	0	9	0	42	0	0	498	1%
18:00	0	0	98	0	0	0	0	0	144	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	243	0%
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Total	0	0	2262	6	0	0	0	4	2141	0	1	0	0	0	0	0	0	0	0	67	0	144	0	0	4625	
Approach Total			2268						2146						0						211					
Forecasted Approach ADT			5,270						5,350						0						260					
Existing Approach ADT			4,680						4,770						0						260					
% Change in ADT (annual)			0.60%						0.58%						0.00%						0.00%					
Truck % By Approach			2%						1%						0%						34%					
Right Turn %				0%						0%						0%						68%				

	NB Utrn	**NB Left**	**NB Thru**	**NB Right**	**South Approach Peds**	**South Approach Bikes**	**SB Utrn**	**SB Left**	**SB Thru**	**SB Right**	**North Approach Peds**	**North Approach Bikes**	**EB Utrn**	**EB Left**	**EB Thru**	**EB Right**	**West Approach Peds**	**West Approach Bikes**	**WB Utrn**	**WB Left**	**WB Thru**	**WB Right**	**East Approach Peds**	**East Approach Bikes**	**Peak Start**	**PHF**
AM Peak	0	0	425	0	0	0	0	0	211	0	0	0	0	0	0	0	0	0	0	21	0	13	0	0	7:30:00 AM	0.81
MD Peak	0	0	163	1	0	0	0	0	194	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	#########	0.90
PM Peak	0	0	304	0	0	0	0	0	263	0	1	0	0	0	0	0	0	0	0	22	0	24	0	0	2:45:00 PM	0.77

Middle School Avenue

Weekday

Middle School Avenue & South School Access

Future (2045)

Date collected: 12/4/2025

Date printed: 1/9/2026

	NB Approach						SB Approach						EB Approach						WB Approach							
Time	**NB Utrn**	**NB Left**	**NB Thru**	**NB Right**	**South Approach Peds**	**South Approach Bikes**	**SB Utrn**	**SB Left**	**SB Thru**	**SB Right**	**North Approach Peds**	**North Approach Bikes**	**EB Utrn**	**EB Left**	**EB Thru**	**EB Right**	**West Approach Peds**	**West Approach Bikes**	**WB Utrn**	**WB Left**	**WB Thru**	**WB Right**	**East Approach Peds**	**East Approach Bikes**	**Int Total**	**Truck % by Hour**
	NBU	NBL	NBT	NBR	EB-WB	EB-WB	SBU	SBL	SBT	SBR	EB-WB	EB-WB	EBU	EBL	EBT	EBR	NB-SB	NB-SB	WBU	WBL	WBT	WBR	NB-SB	NB-SB		
0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
6:00	0	2	51	4	0	0	0	1	20	2	0	0	0	7	0	2	0	0	0	0	0	0	0	0	89	4%
7:00	0	3	169	213	0	0	0	122	66	2	0	0	0	8	0	3	0	0	0	77	0	117	0	0	780	3%
8:00	0	3	186	90	0	0	0	52	95	2	0	0	0	9	0	3	0	0	0	44	0	95	0	0	579	10%
9:00	0	4	118	10	0	0	0	10	85	3	0	0	0	8	0	3	0	0	0	9	0	8	0	0	258	6%
10:00	0	4	104	21	0	0	0	15	94	3	0	0	0	8	0	3	0	0	0	10	0	19	0	0	281	4%
11:00	0	5	112	6	0	0	0	9	111	3	0	0	0	8	0	3	0	0	0	1	0	13	0	0	271	4%
12:00	0	6	141	7	0	0	0	16	169	3	0	0	0	8	0	3	0	0	0	6	0	15	0	0	374	1%
13:00	0	6	114	9	0	0	0	6	125	6	0	0	0	7	0	3	0	0	0	7	0	9	0	0	292	3%
14:00	0	7	142	25	0	0	0	20	155	7	0	0	0	6	0	4	0	0	0	9	0	8	0	0	383	4%
15:00	0	7	190	126	0	0	0	52	199	7	0	0	0	6	0	4	0	0	0	92	0	99	0	0	782	9%
16:00	0	8	167	20	0	0	0	21	219	8	0	0	0	6	0	4	0	0	0	15	0	12	0	0	480	1%
17:00	0	8	117	44	0	0	0	62	208	8	0	0	0	5	0	3	0	0	0	51	0	42	0	0	548	1%
18:00	0	7	86	14	0	0	0	2	134	7	0	0	0	5	0	3	0	0	0	9	0	5	0	0	272	0%
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Total	0	70	1697	589	0	0	0	388	1680	61	0	0	0	91	0	41	0	0	0	330	0	442	0	0	5389	
Approach Total			2356						2129						132						772					
Forecasted Approach ADT			5,340						5,280						320						2,120					
Existing Approach ADT			4,930						4,820						0						2,120					
% Change in ADT (annual)			0.40%						0.46%						0.00%						0.00%					
Truck % By Approach			5%						3%						0%						3%					
Right Turn %				25%						3%						31%						57%				

	NB Utrn	**NB Left**	**NB Thru**	**NB Right**	**South Approach Peds**	**South Approach Bikes**	**SB Utrn**	**SB Left**	**SB Thru**	**SB Right**	**North Approach Peds**	**North Approach Bikes**	**EB Utrn**	**EB Left**	**EB Thru**	**EB Right**	**West Approach Peds**	**West Approach Bikes**	**WB Utrn**	**WB Left**	**WB Thru**	**WB Right**	**East Approach Peds**	**East Approach Bikes**	**Peak Start**	**PHF**
AM Peak	0	0	225	231	0	0	0	122	95	0	0	0	0	0	0	0	0	0	0	80	0	159	0	0	7:15:00 AM	0.76
MD Peak	0	0	141	7	0	0	0	16	169	0	0	0	0	0	0	0	0	0	0	6	0	15	0	0	#########	0.86
PM Peak	0	0	194	135	0	0	0	59	212	0	0	0	0	0	0	0	0	0	0	82	0	91	0	0	2:45:00 PM	0.73

Middle School Avenue

Weekday

Middle School Avenue & 15th Street

Future (2045)

Date collected: 12/4/2025

Date printed: 1/9/2026

	NB Approach						SB Approach						EB Approach						WB Approach							
Time	**NB Utrn**	**NB Left**	**NB Thru**	**NB Right**	**South Approach Peds**	**South Approach Bikes**	**SB Utrn**	**SB Left**	**SB Thru**	**SB Right**	**North Approach Peds**	**North Approach Bikes**	**EB Utrn**	**EB Left**	**EB Thru**	**EB Right**	**West Approach Peds**	**West Approach Bikes**	**WB Utrn**	**WB Left**	**WB Thru**	**WB Right**	**East Approach Peds**	**East Approach Bikes**	**Int Total**	**Truck % by Hour**
	NBU	NBL	NBT	NBR	EB-WB	EB-WB	SBU	SBL	SBT	SBR	EB-WB	EB-WB	EBU	EBL	EBT	EBR	NB-SB	NB-SB	WBU	WBL	WBT	WBR	NB-SB	NB-SB		
0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
6:00	0	0	0	0	0	0	0	6	0	15	0	0	0	27	25	0	0	0	0	0	53	28	0	0	154	11%
7:00	0	0	0	0	0	0	0	51	0	107	0	0	0	244	168	0	0	0	0	0	87	175	0	0	832	4%
8:00	0	0	0	0	0	0	0	67	0	86	0	0	0	178	103	0	0	0	0	0	82	111	0	0	627	10%
9:00	0	0	0	0	0	0	0	47	0	54	0	0	0	64	64	0	0	0	0	0	52	68	0	0	349	6%
10:00	0	0	0	0	0	0	0	54	0	57	0	0	0	65	45	0	0	0	0	0	45	65	0	0	331	4%
11:00	0	0	0	0	0	0	0	52	0	66	0	0	0	47	63	0	0	0	0	0	63	75	0	0	366	5%
12:00	0	0	0	0	0	0	0	92	0	92	0	0	0	65	63	0	0	0	0	0	96	89	0	0	497	2%
13:00	0	0	0	0	0	0	0	56	0	84	0	0	0	53	49	0	0	0	0	0	54	76	0	0	372	5%
14:00	0	0	0	0	0	0	0	74	0	102	0	0	0	76	84	0	0	0	0	0	98	99	0	0	533	8%
15:00	0	0	0	0	0	0	0	130	0	182	0	0	0	193	96	0	0	0	0	0	95	145	0	0	841	9%
16:00	0	0	0	0	0	0	0	70	0	182	0	0	0	90	89	0	0	0	0	0	141	109	0	0	681	3%
17:00	0	0	0	0	0	0	0	107	0	173	0	0	0	82	86	0	0	0	1	0	103	86	0	0	638	2%
18:00	0	0	0	0	0	0	0	32	0	123	0	0	0	67	39	0	0	0	0	0	79	37	0	0	377	0%
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Total	0	0	0	0	0	0	0	838	0	1323	0	0	0	1251	974	0	0	0	1	0	1048	1163	0	0	6598	
Approach Total			0						2161						2225						2212					
Forecasted Approach ADT			0						5,550						5,570						4,880					
Existing Approach ADT			0						4,930						4,980						4,390					
% Change in ADT (annual)			0.00%						0.59%						0.56%						0.53%					
Truck % By Approach			0%						4%						6%						4%					
Right Turn %				0%						61%						0%						53%				

	NB Utrn	**NB Left**	**NB Thru**	**NB Right**	**South Approach Peds**	**South Approach Bikes**	**SB Utrn**	**SB Left**	**SB Thru**	**SB Right**	**North Approach Peds**	**North Approach Bikes**	**EB Utrn**	**EB Left**	**EB Thru**	**EB Right**	**West Approach Peds**	**West Approach Bikes**	**WB Utrn**	**WB Left**	**WB Thru**	**WB Right**	**East Approach Peds**	**East Approach Bikes**	**Peak Start**	**PHF**
AM Peak	0	0	0	0	0	0	0	70	0	120	0	0	0	300	187	0	0	0	0	0	98	193	0	0	7:15:00 AM	0.76
MD Peak	0	0	0	0	0	0	0	92	0	92	0	0	0	65	63	0	0	0	0	0	96	89	0	0	#########	0.85
PM Peak	0	0	0	0	0	0	0	129	0	187	0	0	0	192	89	0	0	0	0	0	101	163	0	0	2:45:00 PM	0.89

APPENDIX B: SYNCHRO/HCM RESULTS

Existing 2025 Traffic Operations

Intersection	
Intersection Delay, s/veh	6.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	92	122	584	295
Demand Flow Rate, veh/h	96	124	602	300
Vehicles Circulating, veh/h	305	404	85	124
Vehicles Exiting, veh/h	119	283	316	404
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.6	5.3	7.9	5.2
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	96	124	602	300
Cap Entry Lane, veh/h	1011	914	1265	1216
Entry HV Adj Factor	0.957	0.988	0.970	0.982
Flow Entry, veh/h	92	122	584	295
Cap Entry, veh/h	967	902	1228	1194
V/C Ratio	0.095	0.136	0.476	0.247
Control Delay, s/veh	4.6	5.3	7.9	5.2
LOS	A	A	A	A
95th %tile Queue, veh	0	0	3	1

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	1	1	18	1	87	1	321	75	47	169	1
Future Vol, veh/h	1	1	1	18	1	87	1	321	75	47	169	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	50	200	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2	3	3	3	2	2	2
Mvmt Flow	1	1	1	26	1	124	1	459	107	67	241	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	839	945	242	891	892	512	243	0	0	566	0	0
Stage 1	376	376	-	515	515	-	-	-	-	-	-	-
Stage 2	462	569	-	376	377	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.13	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.227	-	-	2.218	-	-
Pot Cap-1 Maneuver	285	262	797	263	281	562	1318	-	-	1006	-	-
Stage 1	645	616	-	543	535	-	-	-	-	-	-	-
Stage 2	580	506	-	645	616	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	206	244	797	243	262	562	1318	-	-	1006	-	-
Mov Cap-2 Maneuver	206	244	-	243	262	-	-	-	-	-	-	-
Stage 1	602	575	-	542	534	-	-	-	-	-	-	-
Stage 2	450	506	-	599	575	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	17.33	14.72	0.02	1.91
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1318	-	-	206	374	244	562	1006	-	-
HCM Lane V/C Ratio	0.001	-	-	0.007	0.008	0.111	0.221	0.067	-	-
HCM Control Delay (s/veh)	7.7	-	-	22.6	14.7	21.6	13.2	8.8	-	-
HCM Lane LOS	A	-	-	C	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0.4	0.8	0.2	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	14	383	0	0	188
Future Vol, veh/h	21	14	383	0	0	188
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	10	10	2	2	2	2
Mvmt Flow	30	20	547	0	0	269

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	816	547	0	-	-	-
Stage 1	547	-	-	-	-	-
Stage 2	269	-	-	-	-	-
Critical Hdwy	6.5	6.3	-	-	-	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	-	-	-	-
Pot Cap-1 Maneuver	336	522	-	0	0	-
Stage 1	564	-	-	0	0	-
Stage 2	758	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	336	522	-	-	-	-
Mov Cap-2 Maneuver	336	-	-	-	-	-
Stage 1	564	-	-	-	-	-
Stage 2	758	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	14.93	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	336	522	-
HCM Lane V/C Ratio	-	0.089	0.038	-
HCM Control Delay (s/veh)	-	16.8	12.2	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q(veh)	-	0.3	0.1	-

Intersection	
Int Delay, s/veh	5.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	161	222	231	122	87
Future Vol, veh/h	80	161	222	231	122	87
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	110	-	290	280	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	3	3	5	5	4	4
Mvmt Flow	114	230	317	330	174	124

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	790	317	0	0	647	0
Stage 1	317	-	-	-	-	-
Stage 2	473	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.14	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.236	-
Pot Cap-1 Maneuver	358	721	-	-	929	-
Stage 1	736	-	-	-	-	-
Stage 2	625	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	290	721	-	-	929	-
Mov Cap-2 Maneuver	290	-	-	-	-	-
Stage 1	736	-	-	-	-	-
Stage 2	508	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	16.59	0	5.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	290	721	929	-
HCM Lane V/C Ratio	-	-	0.393	0.319	0.188	-
HCM Control Delay (s/veh)	-	-	25.2	12.3	9.8	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	1.8	1.4	0.7	-

Intersection	
Int Delay, s/veh	8.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	276	168	89	177	62	105
Future Vol, veh/h	276	168	89	177	62	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	250	-	-	190	500	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	7	7	5	5	4	4
Mvmt Flow	394	240	127	253	89	150

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	380	0	-	0	1156	127
Stage 1	-	-	-	-	127	-
Stage 2	-	-	-	-	1029	-
Critical Hdwy	4.17	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.263	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1152	-	-	-	215	918
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	342	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1152	-	-	-	142	918
Mov Cap-2 Maneuver	-	-	-	-	142	-
Stage 1	-	-	-	-	588	-
Stage 2	-	-	-	-	342	-

Approach	EB	WB	SB
HCM Control Delay, s/v	6.06	0	30.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1152	-	-	-	142	918
HCM Lane V/C Ratio	0.342	-	-	-	0.625	0.163
HCM Control Delay (s/veh)	9.7	-	-	-	65.5	9.7
HCM Lane LOS	A	-	-	-	F	A
HCM 95th %tile Q(veh)	1.5	-	-	-	3.3	0.6

Intersection	
Intersection Delay, s/veh	5.7
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	93	226	404	218
Demand Flow Rate, veh/h	96	231	416	223
Vehicles Circulating, veh/h	299	301	129	151
Vehicles Exiting, veh/h	75	244	266	381
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.5	5.8	6.4	4.8
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	96	231	416	223
Cap Entry Lane, veh/h	1017	1015	1210	1183
Entry HV Adj Factor	0.971	0.979	0.972	0.978
Flow Entry, veh/h	93	226	404	218
Cap Entry, veh/h	987	994	1176	1157
V/C Ratio	0.094	0.228	0.344	0.189
Control Delay, s/veh	4.5	5.8	6.4	4.8
LOS	A	A	A	A
95th %tile Queue, veh	0	1	2	1

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1	3	14	1	52	3	280	29	19	196	2
Future Vol, veh/h	3	1	3	14	1	52	3	280	29	19	196	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	50	200	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	40	40	40	40	40	40	60	60	60	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2	3	3	3	2	2	2
Mvmt Flow	8	3	8	35	3	130	5	467	48	32	327	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	870	917	328	892	894	491	330	0	0	515	0	0
Stage 1	392	392	-	501	501	-	-	-	-	-	-	-
Stage 2	478	525	-	391	393	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.13	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.227	-	-	2.218	-	-
Pot Cap-1 Maneuver	272	272	713	263	280	578	1224	-	-	1051	-	-
Stage 1	633	607	-	552	543	-	-	-	-	-	-	-
Stage 2	568	529	-	633	606	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	202	263	713	249	271	578	1224	-	-	1051	-	-
Mov Cap-2 Maneuver	202	263	-	249	271	-	-	-	-	-	-	-
Stage 1	614	588	-	550	540	-	-	-	-	-	-	-
Stage 2	437	527	-	605	587	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	17.14	15.02	0.08	0.75
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1224	-	-	202	499	250	578	1051	-	-
HCM Lane V/C Ratio	0.004	-	-	0.037	0.02	0.15	0.225	0.03	-	-
HCM Control Delay (s/veh)	8	-	-	23.5	12.4	21.9	13	8.5	-	-
HCM Lane LOS	A	-	-	C	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.5	0.9	0.1	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	34	278	0	0	213
Future Vol, veh/h	22	34	278	0	0	213
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	40	40	60	60	60	60
Heavy Vehicles, %	10	10	2	2	2	2
Mvmt Flow	55	85	463	0	0	355

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	818	463	0	-	-	-
Stage 1	463	-	-	-	-	-
Stage 2	355	-	-	-	-	-
Critical Hdwy	6.5	6.3	-	-	-	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	-	-	-	-
Pot Cap-1 Maneuver	335	582	-	0	0	-
Stage 1	617	-	-	0	0	-
Stage 2	692	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	335	582	-	-	-	-
Mov Cap-2 Maneuver	335	-	-	-	-	-
Stage 1	617	-	-	-	-	-
Stage 2	692	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	14.44	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	335	582	-
HCM Lane V/C Ratio	-	0.164	0.146	-
HCM Control Delay (s/veh)	-	17.9	12.2	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q(veh)	-	0.6	0.5	-

Intersection	
Int Delay, s/veh	11.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	92	99	179	126	52	183
Future Vol, veh/h	92	99	179	126	52	183
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	110	-	290	280	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	35	35	60	60	60	60
Heavy Vehicles, %	3	3	5	5	4	4
Mvmt Flow	263	283	298	210	87	305

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	777	298	0	0	508	0
Stage 1	298	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.14	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.236	-
Pot Cap-1 Maneuver	364	739	-	-	1046	-
Stage 1	751	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	334	739	-	-	1046	-
Mov Cap-2 Maneuver	334	-	-	-	-	-
Stage 1	751	-	-	-	-	-
Stage 2	570	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	28.85	0	1.94
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	334	739	1046	-
HCM Lane V/C Ratio	-	-	0.787	0.383	0.083	-
HCM Control Delay (s/veh)	-	-	46.1	12.9	8.8	-
HCM Lane LOS	-	-	E	B	A	-
HCM 95th %tile Q(veh)	-	-	6.4	1.8	0.3	-

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	175	87	85	130	116	159
Future Vol, veh/h	175	87	85	130	116	159
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	250	-	-	190	500	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	7	7	5	5	4	4
Mvmt Flow	197	98	96	146	130	179

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	242	0	-	0	587	96
Stage 1	-	-	-	-	96	-
Stage 2	-	-	-	-	491	-
Critical Hdwy	4.17	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.263	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1296	-	-	-	469	956
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	611	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1296	-	-	-	398	956
Mov Cap-2 Maneuver	-	-	-	-	398	-
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	611	-

Approach	EB	WB	SB
HCM Control Delay, s/v	5.53	0	13.33
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1296	-	-	-	398	956
HCM Lane V/C Ratio	0.152	-	-	-	0.328	0.187
HCM Control Delay (s/veh)	8.3	-	-	-	18.4	9.6
HCM Lane LOS	A	-	-	-	C	A
HCM 95th %tile Q(veh)	0.5	-	-	-	1.4	0.7

Intersection	
Intersection Delay, s/veh	12.9
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	177	363	805	324
Demand Flow Rate, veh/h	184	371	829	330
Vehicles Circulating, veh/h	474	590	233	248
Vehicles Exiting, veh/h	104	472	425	713
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.7	11.9	17.2	6.5
Approach LOS	A	B	C	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	184	371	829	330
Cap Entry Lane, veh/h	851	756	1088	1071
Entry HV Adj Factor	0.960	0.978	0.971	0.981
Flow Entry, veh/h	177	363	805	324
Cap Entry, veh/h	817	739	1057	1051
V/C Ratio	0.216	0.491	0.762	0.308
Control Delay, s/veh	6.7	11.9	17.2	6.5
LOS	A	B	C	A
95th %tile Queue, veh	1	3	8	1

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	1	9	36	1	138	3	528	57	30	318	6
Future Vol, veh/h	6	1	9	36	1	138	3	528	57	30	318	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	50	200	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	3	3	3	2	2	2
Mvmt Flow	7	1	11	42	1	162	4	621	67	35	374	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1077	1144	378	1107	1114	655	381	0	0	688	0	0
Stage 1	448	448	-	662	662	-	-	-	-	-	-	-
Stage 2	629	695	-	445	452	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.13	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.227	-	-	2.218	-	-
Pot Cap-1 Maneuver	197	200	669	188	208	466	1172	-	-	906	-	-
Stage 1	590	573	-	451	459	-	-	-	-	-	-	-
Stage 2	470	444	-	592	571	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	122	192	669	176	200	466	1172	-	-	906	-	-
Mov Cap-2 Maneuver	122	192	-	176	200	-	-	-	-	-	-	-
Stage 1	567	550	-	450	458	-	-	-	-	-	-	-
Stage 2	305	442	-	559	548	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	21.03	20	0.04	0.77
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1172	-	-	122	536	176	466	906	-	-
HCM Lane V/C Ratio	0.003	-	-	0.058	0.022	0.247	0.348	0.039	-	-
HCM Control Delay (s/veh)	8.1	-	-	36.3	11.9	32	16.8	9.1	-	-
HCM Lane LOS	A	-	-	E	B	D	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0.9	1.5	0.1	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	66	69	525	0	0	366
Future Vol, veh/h	66	69	525	0	0	366
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	10	10	2	2	2	2
Mvmt Flow	78	81	618	0	0	431

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1048	618	0	-	-	-
Stage 1	618	-	-	-	-	-
Stage 2	431	-	-	-	-	-
Critical Hdwy	6.5	6.3	-	-	-	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	-	-	-	-
Pot Cap-1 Maneuver	244	475	-	0	0	-
Stage 1	523	-	-	0	0	-
Stage 2	639	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	244	475	-	-	-	-
Mov Cap-2 Maneuver	244	-	-	-	-	-
Stage 1	523	-	-	-	-	-
Stage 2	639	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	20.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	244	475	-
HCM Lane V/C Ratio	-	0.319	0.171	-
HCM Control Delay (s/veh)	-	26.5	14.1	-
HCM Lane LOS	-	D	B	-
HCM 95th %tile Q(veh)	-	1.3	0.6	-

Intersection	
Int Delay, s/veh	24.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	222	246	282	222	111	339
Future Vol, veh/h	222	246	282	222	111	339
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	110	-	290	280	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	3	3	5	5	4	4
Mvmt Flow	261	289	332	261	131	399

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	992	332	0	0	593	0
Stage 1	332	-	-	-	-	-
Stage 2	660	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.14	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.236	-
Pot Cap-1 Maneuver	271	708	-	-	973	-
Stage 1	725	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 235	708	-	-	973	-
Mov Cap-2 Maneuver	~ 235	-	-	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	443	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	71.85	0	2.29
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	235	708	973	-
HCM Lane V/C Ratio	-	-	1.111	0.409	0.134	-
HCM Control Delay (s/veh)	-	-	136.4	13.6	9.3	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	11.7	2	0.5	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	38.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	255	123	120	234	240	321
Future Vol, veh/h	255	123	120	234	240	321
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	250	-	-	190	500	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	7	7	5	5	4	4
Mvmt Flow	300	145	141	275	282	378

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	416	0	-	0	886	141
Stage 1	-	-	-	-	141	-
Stage 2	-	-	-	-	745	-
Critical Hdwy	4.17	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.263	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1116	-	-	-	313	901
Stage 1	-	-	-	-	881	-
Stage 2	-	-	-	-	466	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1116	-	-	-	~ 229	901
Mov Cap-2 Maneuver	-	-	-	-	~ 229	-
Stage 1	-	-	-	-	644	-
Stage 2	-	-	-	-	466	-

Approach	EB	WB	SB
HCM Control Delay, s/v	6.35	0	84.35
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1116	-	-	-	229	901
HCM Lane V/C Ratio	0.269	-	-	-	1.236	0.419
HCM Control Delay (s/veh)	9.4	-	-	-	181.3	11.8
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	1.1	-	-	-	14.2	2.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Forecast 2045 Traffic Operations

Intersection	
Intersection Delay, s/veh	6.9
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	102	134	600	319
Demand Flow Rate, veh/h	106	137	618	325
Vehicles Circulating, veh/h	333	420	93	138
Vehicles Exiting, veh/h	130	291	346	419
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.8	5.6	8.2	5.5
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	106	137	618	325
Cap Entry Lane, veh/h	983	899	1255	1199
Entry HV Adj Factor	0.960	0.981	0.971	0.982
Flow Entry, veh/h	102	134	600	319
Cap Entry, veh/h	943	882	1218	1178
V/C Ratio	0.108	0.152	0.492	0.271
Control Delay, s/veh	4.8	5.6	8.2	5.5
LOS	A	A	A	A
95th %tile Queue, veh	0	1	3	1

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	1	1	18	1	87	1	332	75	47	189	1
Future Vol, veh/h	1	1	1	18	1	87	1	332	75	47	189	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	50	200	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2	3	3	3	2	2	2
Mvmt Flow	1	1	1	26	1	124	1	474	107	67	270	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	883	989	271	936	936	528	271	0	0	581	0	0
Stage 1	405	405	-	531	531	-	-	-	-	-	-	-
Stage 2	478	584	-	405	406	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.13	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.227	-	-	2.218	-	-
Pot Cap-1 Maneuver	266	247	768	245	265	550	1286	-	-	993	-	-
Stage 1	622	598	-	532	526	-	-	-	-	-	-	-
Stage 2	568	498	-	622	598	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	191	230	768	227	247	550	1286	-	-	993	-	-
Mov Cap-2 Maneuver	191	230	-	227	247	-	-	-	-	-	-	-
Stage 1	580	558	-	531	526	-	-	-	-	-	-	-
Stage 2	438	497	-	578	558	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	18.17	15.14	0.02	1.76
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1286	-	-	191	354	228	550	993	-	-
HCM Lane V/C Ratio	0.001	-	-	0.007	0.008	0.119	0.226	0.068	-	-
HCM Control Delay (s/veh)	7.8	-	-	24	15.3	22.9	13.4	8.9	-	-
HCM Lane LOS	A	-	-	C	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0.4	0.9	0.2	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	14	394	0	0	208
Future Vol, veh/h	21	14	394	0	0	208
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	10	10	2	2	2	2
Mvmt Flow	30	20	563	0	0	297

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	860	563	0	-	-	-
Stage 1	563	-	-	-	-	-
Stage 2	297	-	-	-	-	-
Critical Hdwy	6.5	6.3	-	-	-	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	-	-	-	-
Pot Cap-1 Maneuver	316	511	-	0	0	-
Stage 1	555	-	-	0	0	-
Stage 2	736	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	316	511	-	-	-	-
Mov Cap-2 Maneuver	316	-	-	-	-	-
Stage 1	555	-	-	-	-	-
Stage 2	736	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	15.48	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	316	511	-
HCM Lane V/C Ratio	-	0.095	0.039	-
HCM Control Delay (s/veh)	-	17.6	12.3	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q(veh)	-	0.3	0.1	-

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	1	2	80	1	161	9	227	231	122	102	5
Future Vol, veh/h	6	1	2	80	1	161	9	227	231	122	102	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	110	100	-	290	280	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	3	2	3	2	5	5	4	4	2
Mvmt Flow	9	1	3	114	1	230	13	324	330	174	146	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	849	1178	149	845	851	324	153	0	0	654	0	0
Stage 1	498	498	-	350	350	-	-	-	-	-	-	-
Stage 2	351	680	-	495	501	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.13	6.52	6.23	4.12	-	-	4.14	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.13	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.13	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.527	4.018	3.327	2.218	-	-	2.236	-	-
Pot Cap-1 Maneuver	281	191	897	282	297	714	1428	-	-	923	-	-
Stage 1	554	544	-	664	633	-	-	-	-	-	-	-
Stage 2	666	451	-	555	542	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	152	153	897	224	239	714	1428	-	-	923	-	-
Mov Cap-2 Maneuver	152	153	-	224	239	-	-	-	-	-	-	-
Stage 1	450	442	-	658	627	-	-	-	-	-	-	-
Stage 2	446	447	-	447	440	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	25.65	20.66	0.15	5.22
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1428	-	-	187	224	714	923	-	-
HCM Lane V/C Ratio	0.009	-	-	0.069	0.516	0.322	0.189	-	-
HCM Control Delay (s/veh)	7.5	-	-	25.7	37	12.4	9.8	-	-
HCM Lane LOS	A	-	-	D	E	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	2.7	1.4	0.7	-	-

Intersection	
Int Delay, s/veh	11.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	285	187	98	182	68	116
Future Vol, veh/h	285	187	98	182	68	116
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	250	-	-	190	500	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	7	7	5	5	4	4
Mvmt Flow	407	267	140	260	97	166

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	400	0	-	0	1221	140
Stage 1	-	-	-	-	140	-
Stage 2	-	-	-	-	1081	-
Critical Hdwy	4.17	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.263	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1132	-	-	-	197	903
Stage 1	-	-	-	-	882	-
Stage 2	-	-	-	-	322	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1132	-	-	-	126	903
Mov Cap-2 Maneuver	-	-	-	-	126	-
Stage 1	-	-	-	-	565	-
Stage 2	-	-	-	-	322	-

Approach	EB	WB	SB
HCM Control Delay, s/v	6.01	0	41.08
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1132	-	-	-	126	903
HCM Lane V/C Ratio	0.36	-	-	-	0.772	0.184
HCM Control Delay (s/veh)	10	-	-	-	94.3	9.9
HCM Lane LOS	A	-	-	-	F	A
HCM 95th %tile Q(veh)	1.7	-	-	-	4.5	0.7

Intersection	
Intersection Delay, s/veh	6.1
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	100	252	429	249
Demand Flow Rate, veh/h	105	257	442	254
Vehicles Circulating, veh/h	333	324	143	168
Vehicles Exiting, veh/h	89	261	295	413
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.8	6.3	6.8	5.1
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	105	257	442	254
Cap Entry Lane, veh/h	983	992	1193	1163
Entry HV Adj Factor	0.954	0.981	0.971	0.979
Flow Entry, veh/h	100	252	429	249
Cap Entry, veh/h	938	973	1158	1139
V/C Ratio	0.107	0.259	0.371	0.218
Control Delay, s/veh	4.8	6.3	6.8	5.1
LOS	A	A	A	A
95th %tile Queue, veh	0	1	2	1

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1	3	14	1	52	3	301	29	19	219	2
Future Vol, veh/h	3	1	3	14	1	52	3	301	29	19	219	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	50	200	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	40	40	40	40	40	40	60	60	60	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2	3	3	3	2	2	2
Mvmt Flow	8	3	8	35	3	130	5	502	48	32	365	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	943	990	367	965	968	526	368	0	0	550	0	0
Stage 1	430	430	-	536	536	-	-	-	-	-	-	-
Stage 2	513	560	-	430	432	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.13	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.227	-	-	2.218	-	-
Pot Cap-1 Maneuver	243	246	679	234	254	552	1185	-	-	1020	-	-
Stage 1	603	583	-	529	523	-	-	-	-	-	-	-
Stage 2	544	511	-	604	582	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	177	238	679	221	245	552	1185	-	-	1020	-	-
Mov Cap-2 Maneuver	177	238	-	221	245	-	-	-	-	-	-	-
Stage 1	585	565	-	526	521	-	-	-	-	-	-	-
Stage 2	412	508	-	576	564	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	18.63	15.96	0.07	0.68
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1185	-	-	177	464	223	552	1020	-	-
HCM Lane V/C Ratio	0.004	-	-	0.042	0.022	0.168	0.236	0.031	-	-
HCM Control Delay (s/veh)	8.1	-	-	26.2	12.9	24.4	13.5	8.6	-	-
HCM Lane LOS	A	-	-	D	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.6	0.9	0.1	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	34	299	0	0	236
Future Vol, veh/h	22	34	299	0	0	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	40	40	60	60	60	60
Heavy Vehicles, %	10	10	2	2	2	2
Mvmt Flow	55	85	498	0	0	393

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	892	498	0	-	-	-
Stage 1	498	-	-	-	-	-
Stage 2	393	-	-	-	-	-
Critical Hdwy	6.5	6.3	-	-	-	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	-	-	-	-
Pot Cap-1 Maneuver	303	556	-	0	0	-
Stage 1	594	-	-	0	0	-
Stage 2	665	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	303	556	-	-	-	-
Mov Cap-2 Maneuver	303	-	-	-	-	-
Stage 1	594	-	-	-	-	-
Stage 2	665	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	15.34	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	303	556	-
HCM Lane V/C Ratio	-	0.182	0.153	-
HCM Control Delay (s/veh)	-	19.5	12.6	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q(veh)	-	0.7	0.5	-

Intersection	
Int Delay, s/veh	23.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	1	3	92	1	99	6	195	126	52	198	8
Future Vol, veh/h	5	1	3	92	1	99	6	195	126	52	198	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	110	100	-	290	280	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	35	35	35	60	60	60	60	60	40
Heavy Vehicles, %	2	2	2	3	2	3	2	5	5	4	4	2
Mvmt Flow	6	1	4	263	3	283	10	325	210	87	330	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	860	1068	340	849	868	325	350	0	0	535	0	0
Stage 1	513	513	-	345	345	-	-	-	-	-	-	-
Stage 2	346	555	-	504	523	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.13	6.52	6.23	4.12	-	-	4.14	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.13	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.13	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.527	4.018	3.327	2.218	-	-	2.236	-	-
Pot Cap-1 Maneuver	276	222	702	280	290	714	1209	-	-	1023	-	-
Stage 1	544	536	-	668	636	-	-	-	-	-	-	-
Stage 2	669	513	-	548	530	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	150	201	702	~ 251	264	714	1209	-	-	1023	-	-
Mov Cap-2 Maneuver	150	201	-	~ 251	264	-	-	-	-	-	-	-
Stage 1	498	490	-	663	631	-	-	-	-	-	-	-
Stage 2	399	509	-	498	485	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	23	62.95	0.15	1.76
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1209	-	-	211	251	714	1023	-	-
HCM Lane V/C Ratio	0.008	-	-	0.053	1.057	0.396	0.085	-	-
HCM Control Delay (s/veh)	8	-	-	23	115.8	13.3	8.8	-	-
HCM Lane LOS	A	-	-	C	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	10.9	1.9	0.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	188	89	101	139	123	170
Future Vol, veh/h	188	89	101	139	123	170
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	250	-	-	190	500	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	7	7	5	5	4	4
Mvmt Flow	211	100	113	156	138	191

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	270	0	-	0	636	113
Stage 1	-	-	-	-	113	-
Stage 2	-	-	-	-	522	-
Critical Hdwy	4.17	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.263	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1265	-	-	-	439	934
Stage 1	-	-	-	-	906	-
Stage 2	-	-	-	-	591	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1265	-	-	-	366	934
Mov Cap-2 Maneuver	-	-	-	-	366	-
Stage 1	-	-	-	-	755	-
Stage 2	-	-	-	-	591	-

Approach	EB	WB	SB
HCM Control Delay, s/v	5.71	0	14.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1265	-	-	-	366	934
HCM Lane V/C Ratio	0.167	-	-	-	0.378	0.205
HCM Control Delay (s/veh)	8.4	-	-	-	20.7	9.8
HCM Lane LOS	A	-	-	-	C	A
HCM 95th %tile Q(veh)	0.6	-	-	-	1.7	0.8

Intersection	
Intersection Delay, s/veh	17.4
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	198	410	886	371
Demand Flow Rate, veh/h	206	418	912	379
Vehicles Circulating, veh/h	541	647	260	284
Vehicles Exiting, veh/h	122	525	487	781
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.6	15.1	24.9	7.4
Approach LOS	A	C	C	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	206	418	912	379
Cap Entry Lane, veh/h	795	713	1058	1033
Entry HV Adj Factor	0.963	0.980	0.971	0.979
Flow Entry, veh/h	198	410	886	371
Cap Entry, veh/h	765	699	1028	1011
V/C Ratio	0.259	0.586	0.862	0.367
Control Delay, s/veh	7.6	15.1	24.9	7.4
LOS	A	C	C	A
95th %tile Queue, veh	1	4	11	2

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	1	9	36	1	138	3	555	57	30	342	6
Future Vol, veh/h	6	1	9	36	1	138	3	555	57	30	342	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	50	200	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	3	3	3	2	2	2
Mvmt Flow	7	1	11	42	1	162	4	653	67	35	402	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1137	1204	406	1167	1174	686	409	0	0	720	0	0
Stage 1	476	476	-	694	694	-	-	-	-	-	-	-
Stage 2	661	727	-	474	480	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.13	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.227	-	-	2.218	-	-
Pot Cap-1 Maneuver	179	184	645	171	192	447	1144	-	-	882	-	-
Stage 1	569	556	-	433	444	-	-	-	-	-	-	-
Stage 2	452	429	-	571	554	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	108	176	645	160	184	447	1144	-	-	882	-	-
Mov Cap-2 Maneuver	108	176	-	160	184	-	-	-	-	-	-	-
Stage 1	547	534	-	432	443	-	-	-	-	-	-	-
Stage 2	286	428	-	538	532	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	22.84	21.4	0.04	0.73
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1144	-	-	108	509	160	447	882	-	-
HCM Lane V/C Ratio	0.003	-	-	0.065	0.023	0.272	0.363	0.04	-	-
HCM Control Delay (s/veh)	8.2	-	-	40.5	12.2	35.7	17.6	9.3	-	-
HCM Lane LOS	A	-	-	E	B	E	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	1	1.6	0.1	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	66	69	582	0	0	417
Future Vol, veh/h	66	69	582	0	0	417
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	10	10	2	2	2	2
Mvmt Flow	78	81	685	0	0	491

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1175	685	0	-	-	-
Stage 1	685	-	-	-	-	-
Stage 2	491	-	-	-	-	-
Critical Hdwy	6.5	6.3	-	-	-	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	-	-	-	-
Pot Cap-1 Maneuver	204	435	-	0	0	-
Stage 1	486	-	-	0	0	-
Stage 2	599	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	204	435	-	-	-	-
Mov Cap-2 Maneuver	204	-	-	-	-	-
Stage 1	486	-	-	-	-	-
Stage 2	599	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	23.94	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	204	435	-
HCM Lane V/C Ratio	-	0.381	0.187	-
HCM Control Delay (s/veh)	-	33.1	15.2	-
HCM Lane LOS	-	D	C	-
HCM 95th %tile Q(veh)	-	1.7	0.7	-

Intersection	
Int Delay, s/veh	50.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	1	3	222	1	246	6	297	222	111	369	8
Future Vol, veh/h	5	1	3	222	1	246	6	297	222	111	369	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	110	100	-	290	280	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	3	2	3	2	5	5	4	4	2
Mvmt Flow	6	1	4	261	1	289	7	349	261	131	434	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1064	1325	439	1059	1068	349	444	0	0	611	0	0
Stage 1	700	700	-	364	364	-	-	-	-	-	-	-
Stage 2	364	625	-	696	705	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.13	6.52	6.23	4.12	-	-	4.14	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.13	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.13	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.527	4.018	3.327	2.218	-	-	2.236	-	-
Pot Cap-1 Maneuver	201	156	618	~ 201	222	692	1117	-	-	959	-	-
Stage 1	430	441	-	653	624	-	-	-	-	-	-	-
Stage 2	655	477	-	430	439	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	100	134	618	~ 170	190	692	1117	-	-	959	-	-
Mov Cap-2 Maneuver	100	134	-	~ 170	190	-	-	-	-	-	-	-
Stage 1	371	381	-	649	620	-	-	-	-	-	-	-
Stage 2	378	474	-	369	379	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	31.99	158.71	0.09	2.13
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1117	-	-	144	171	692	959	-	-
HCM Lane V/C Ratio	0.006	-	-	0.074	1.539	0.418	0.136	-	-
HCM Control Delay (s/veh)	8.2	-	-	32$	318.5	13.9	9.3	-	-
HCM Lane LOS	A	-	-	D	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	17.2	2.1	0.5	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	76.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	282	135	135	261	273	369
Future Vol, veh/h	282	135	135	261	273	369
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	250	-	-	190	500	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	7	7	5	5	4	4
Mvmt Flow	332	159	159	307	321	434

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	466	0	-	0	981	159
Stage 1	-	-	-	-	159	-
Stage 2	-	-	-	-	822	-
Critical Hdwy	4.17	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.263	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1070	-	-	-	~ 274	881
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	428	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1070	-	-	-	~ 189	881
Mov Cap-2 Maneuver	-	-	-	-	~ 189	-
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	428	-

Approach	EB	WB	SB
HCM Control Delay, s/v	6.68	0	168.61
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1070	-	-	-	189	881
HCM Lane V/C Ratio	0.31	-	-	-	1.698	0.493
HCM Control Delay (s/veh)	9.9	-	-	-	$ 379	13
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	1.3	-	-	-	22	2.8

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

APPENDIX C: SIGNAL WARRANT ANALYSIS RESULTS

Existing 2025 Signal Warrants

Middle School Avenue **Existing (2025)**

City/County: Bemidji, MN
Intersection: Middle School Avenue & 23rd Street

Study Data

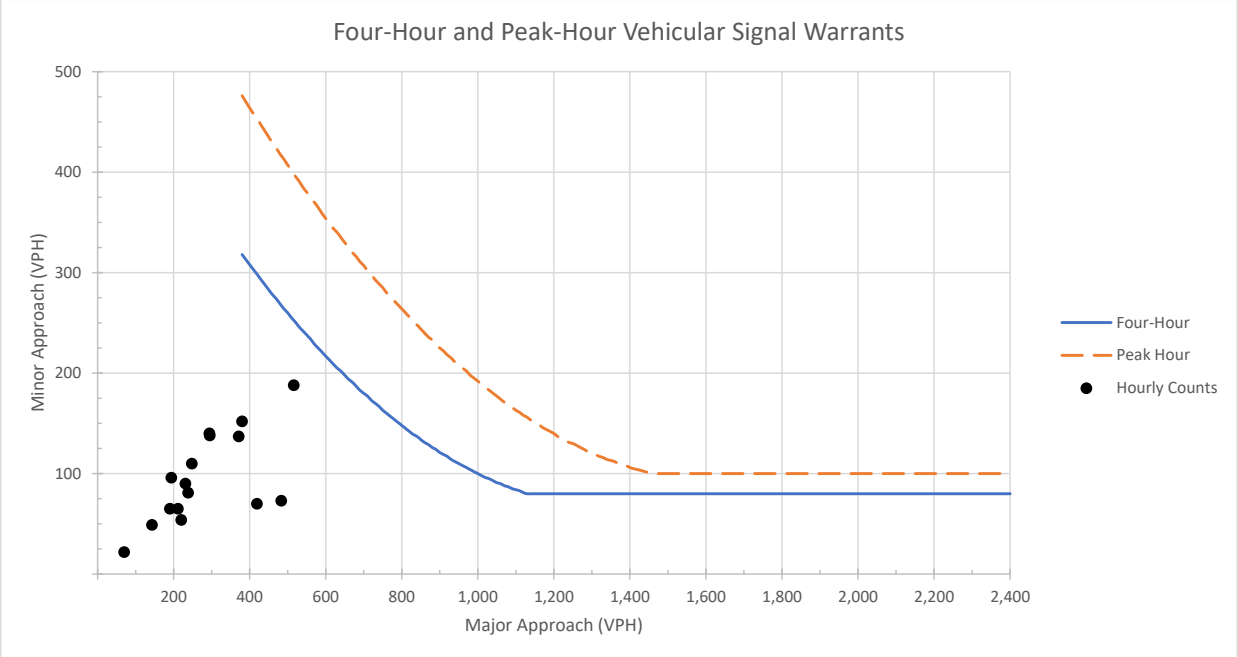
Date:	1/7/2026	Approach	Speed	Lanes	LT Vol.	LT Ln.	RT Vol.	RT Ln.
Population < 10,000:	No	Major 1:	35	1	100%	Incl.	100%	Incl.
Existing Signal:	No	Major 3:	35	1	100%	Incl.	100%	Incl.
0.70 Factor Used:	No	Minor 2:	30	1	100%	Incl.	100%	Excl.
0.80 Factor Used:	No	Minor 4:	30	1	100%	Incl.	100%	Excl.

Warrants Analysis

Time of Day	Major #1	Major #3	Total 1+3	Major 1A/1B 500/750	Minor #2	Minor #2 1A/1B 150/075	Minor #4	Minor #4 1A/1B 150/075	Both Met 1A/1B	MWSA Warrant
6:00 - 7:00	50	20	70	/	10	/	22	/	**/**	
7:00 - 8:00	283	200	483	/	42	/	73	/	**/**	
8:00 - 9:00	299	120	419	/	50	/	70	/	**/**	
9:00 - 10:00	122	89	211	/	40	/	65	/	**/**	
10:00 - 11:00	120	100	220	/	43	/	54	/	**/**	
11:00 - 12:00	118	113	231	/	44	/	90	/X	**/**	
12:00 - 1:00	146	148	294	/	44	/	140	/X	**/**	
1:00 - 2:00	121	127	248	/	28	/	110	/X	**/**	
2:00 - 3:00	143	152	295	/	39	/	138	/X	**/**	
3:00 - 4:00	335	181	516	X/	77	/X	188	X/X	**X/**	**X**
4:00 - 5:00	196	175	371	/	43	/	137	/X	**/**	
5:00 - 6:00	193	187	380	/	37	/	152	X/X	**/**	
6:00 - 7:00	91	103	194	/	24	/	96	/X	**/**	
7:00 - 8:00	134	104	238	/	32	/	81	/X	**/**	
8:00 - 9:00	107	83	190	/	25	/	65	/	**/**	
9:00 - 10:00	81	62	143	/	19	/	49	/	**/**	

Results

Criteria	Hours Met	Hours Required	Warrants Met
Warrant 1a: Minimum Vehicular Volume	1	8	Not Met
Warrant 1b: Interruption of Continuous Traffic	0	8	Not Met
Warrant 2: Four-Hour Vehicular Volume	0	4	Not Met
Warrant 3: Peak Hour	0	1	Not Met
Multi-way Stop Applications (MWSA)	1	8	Not Met



*Note: For data outside of the graph range, check the minor street volume against the lower thresholds

Middle School Avenue **Existing (2025)**

City/County: Bemidji, MN
Intersection: Middle School Avenue & Parking Lots

Study Data

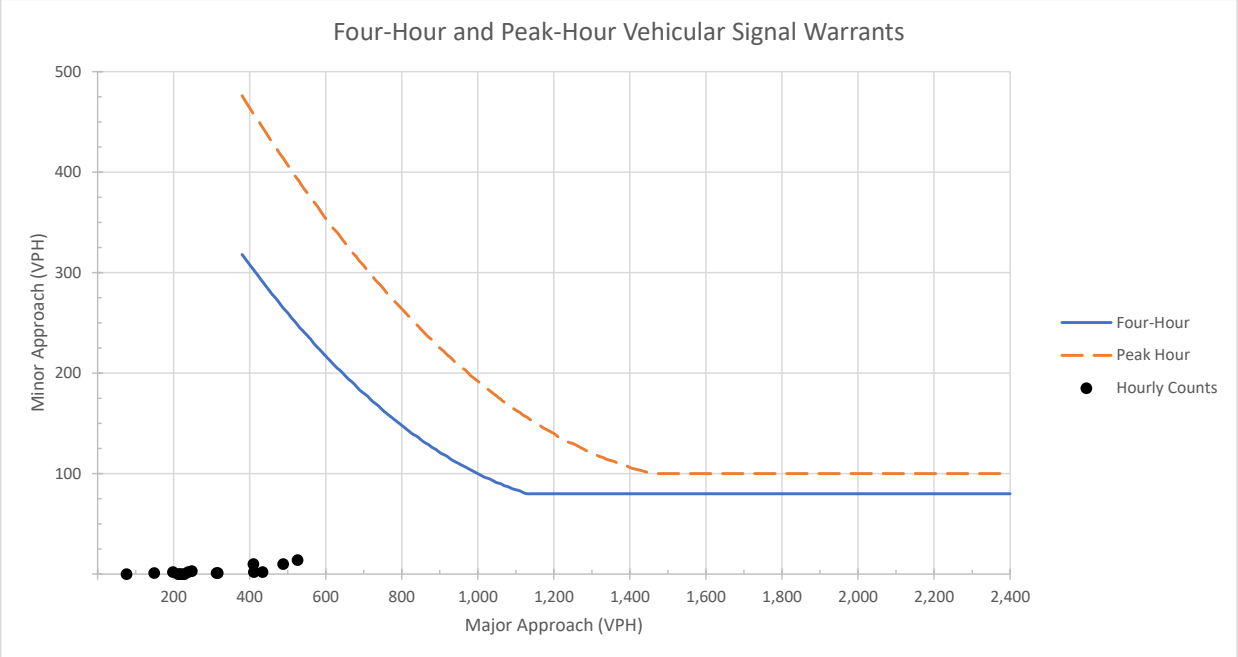
Date:	1/7/2026	Approach	Speed	Lanes	LT Vol.	LT Ln.	RT Vol.	RT Ln.
Population < 10,000:	No	Major 1:	35	1	100%	Excl.	100%	Incl.
Existing Signal:	No	Major 3:	35	1	100%	Excl.	100%	Incl.
0.70 Factor Used:	No	Minor 2:	15	0	0%	Excl.	0%	Excl.
0.80 Factor Used:	No	Minor 4:	15	1	100%	Incl.	0%	Excl.

Warrants Analysis

Time of Day	Major #1	Major #3	Total 1+3	Major 1A/1B 500/750	Minor #2	Minor #2 1A/1B 150/075	Minor #4	Minor #4 1A/1B 150/075	Both Met 1A/1B	MWSA Warrant
6:00 - 7:00	52	24	76	/	0	/	0	/	/	
7:00 - 8:00	288	200	488	/	0	/	10	/	/	
8:00 - 9:00	285	125	410	/	0	/	10	/	/	
9:00 - 10:00	123	89	212	/	0	/	0	/	/	
10:00 - 11:00	118	103	221	/	0	/	0	/	/	
11:00 - 12:00	118	110	228	/	0	/	0	/	/	
12:00 - 1:00	147	169	316	/	0	/	1	/	/	
1:00 - 2:00	120	118	238	/	0	/	2	/	/	
2:00 - 3:00	145	168	313	/	0	/	1	/	/	
3:00 - 4:00	309	217	526	X/	0	/	14	/	/	
4:00 - 5:00	188	223	411	/	0	/	2	/	/	
5:00 - 6:00	192	242	434	/	0	/	2	/	/	
6:00 - 7:00	89	127	216	/	0	/	0	/	/	
7:00 - 8:00	132	116	248	/	1	/	3	/	/	
8:00 - 9:00	105	93	198	/	1	/	2	/	/	
9:00 - 10:00	79	70	149	/	0	/	1	/	/	

Results

Criteria	Hours Met	Hours Required	Warrants Met
Warrant 1a: Minimum Vehicular Volume	0	8	Not Met
Warrant 1b: Interruption of Continuous Traffic	0	8	Not Met
Warrant 2: Four-Hour Vehicular Volume	0	4	Not Met
Warrant 3: Peak Hour	0	1	Not Met
Multi-way Stop Applications (MWSA)	0	8	Not Met



*Note: For data outside of the graph range, check the minor street volume against the lower thresholds

City/County: Bemidji, MN
Intersection: Middle School Avenue & North School Access

Study Data

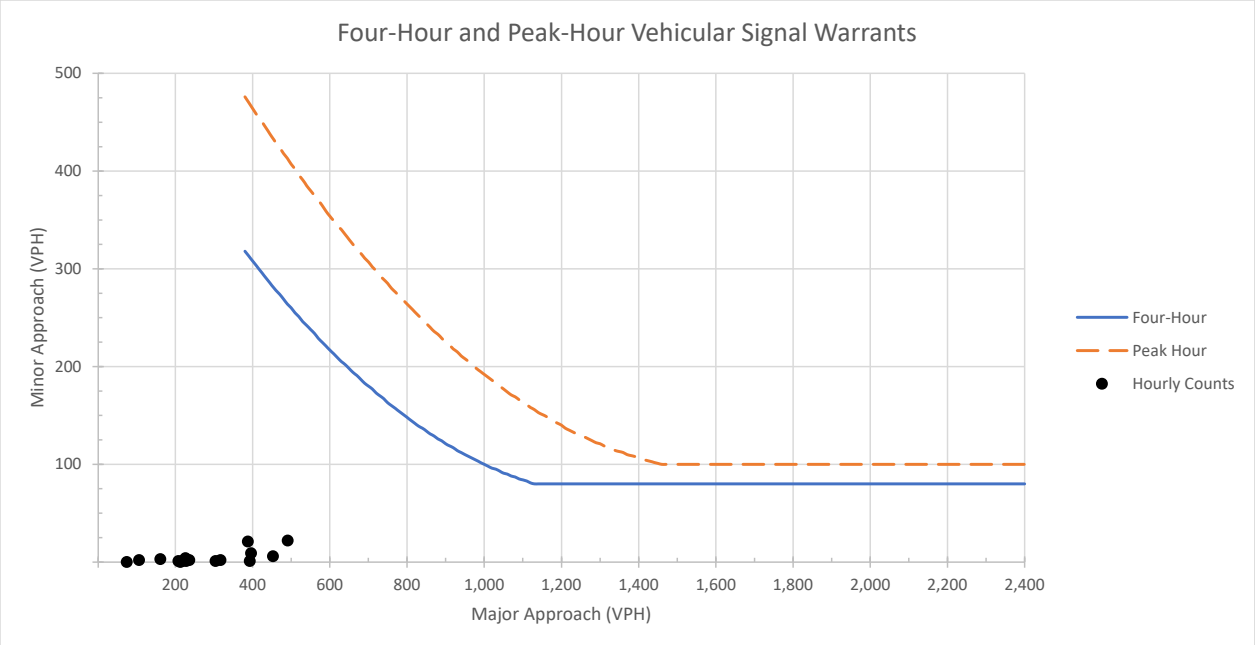
Date:	1/7/2026	Approach	Speed	Lanes	LT Vol.	LT Ln.	RT Vol.	RT Ln.
Population < 10,000:	No	Major 1:	35	1	100%	Incl.	100%	Incl.
Existing Signal:	No	Major 3:	35	1	100%	Incl.	100%	Incl.
0.70 Factor Used:	No	Minor 2:	-	0	100%	Incl.	100%	Excl.
0.80 Factor Used:	No	Minor 4:	15	1	100%	Incl.	0%	Excl.

Warrants Analysis

Time of Day	Major #1	Major #3	Total 1+3	Major 1A/1B 500/750	Minor #2	Minor #2 1A/1B 150/075	Minor #4	Minor #4 1A/1B 150/075	Both Met 1A/1B	MWSA Warrant
6:00 - 7:00	52	22	74	/	0	/	0	/	/	
7:00 - 8:00	273	180	453	/	0	/	6	/	/	
8:00 - 9:00	272	116	388	/	0	/	21	/	/	
9:00 - 10:00	119	89	208	/	0	/	1	/	/	
10:00 - 11:00	116	102	218	/	0	/	1	/	/	
11:00 - 12:00	118	110	228	/	0	/	1	/	/	
12:00 - 1:00	148	169	317	/	0	/	2	/	/	
1:00 - 2:00	115	121	236	/	0	/	2	/	/	
2:00 - 3:00	142	162	304	/	0	/	1	/	/	
3:00 - 4:00	278	213	491	/	0	/	22	/	/	
4:00 - 5:00	170	223	393	/	0	/	1	/	/	
5:00 - 6:00	151	245	396	/	0	/	9	/	/	
6:00 - 7:00	87	126	213	/	0	/	0	/	/	
7:00 - 8:00	118	108	226	/	0	/	4	/	/	
8:00 - 9:00	84	77	161	/	0	/	3	/	/	
9:00 - 10:00	55	51	106	/	0	/	2	/	/	

Results

Criteria	Hours Met	Hours Required	Warrants Met
Warrant 1a: Minimum Vehicular Volume	0	8	Not Met
Warrant 1b: Interruption of Continuous Traffic	0	8	Not Met
Warrant 2: Four-Hour Vehicular Volume	0	4	Not Met
Warrant 3: Peak Hour	0	1	Not Met
Multi-way Stop Applications (MWSA)	0	8	Not Met



*Note: For data outside of the graph range, check the minor street volume against the lower thresholds

Middle School Avenue **Existing (2025)**

City/County: Bemidji, MN

Intersection: Middle School Avenue & South School Access

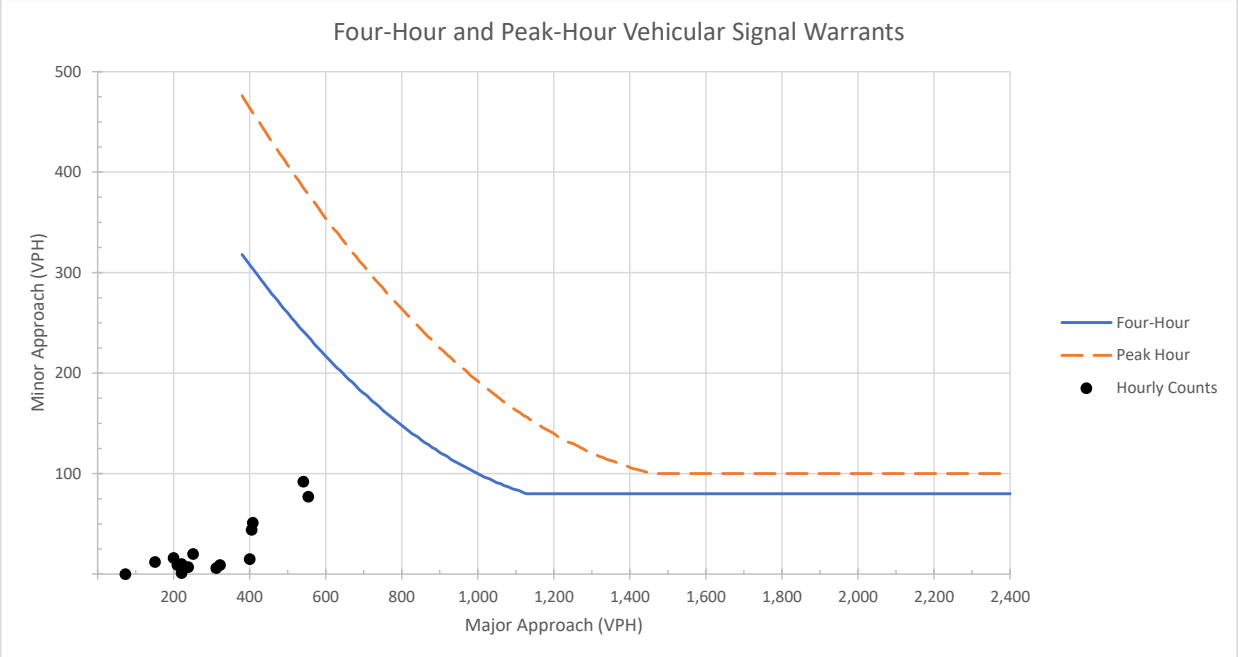
Study Data										
Date:	1/7/2026	Approach	Speed	Lanes	LT Vol.	LT Ln.	RT Vol.	RT Ln.		
Population < 10,000:	No	Major 1:	35	1	100%	Incl.	100%	Excl.		
Existing Signal:	No	Major 3:	35	1	100%	Excl.	100%	Incl.		
0.70 Factor Used:	No	Minor 2:	-	0	100%	Incl.	100%	Excl.		
0.80 Factor Used:	No	Minor 4:	15	1	100%	Incl.	0%	Excl.		

Warrants Analysis

Time of Day	Major #1	Major #3	Total 1+3	Major 1A/1B 500/750	Minor #2	Minor #2 1A/1B 150/075	Minor #4	Minor #4 1A/1B 150/075	Both Met 1A/1B	MWSA Warrant
6:00 - 7:00	53	20	73	/	0	/	0	/	/	
7:00 - 8:00	372	182	554	X/	0	/	77	/X	/	
8:00 - 9:00	265	140	405	/	0	/	44	/	/	
9:00 - 10:00	121	89	210	/	0	/	9	/	/	
10:00 - 11:00	119	102	221	/	0	/	10	/	/	
11:00 - 12:00	110	111	221	/	0	/	1	/	/	
12:00 - 1:00	140	172	312	/	0	/	6	/	/	
1:00 - 2:00	116	122	238	/	0	/	7	/	/	
2:00 - 3:00	159	163	322	/	0	/	9	/	/	
3:00 - 4:00	306	235	541	X/	0	/	92	/X	/	
4:00 - 5:00	177	223	400	/	0	/	15	/	/	
5:00 - 6:00	154	254	408	/	0	/	51	/	/	
6:00 - 7:00	96	126	222	/	0	/	9	/	/	
7:00 - 8:00	133	118	251	/	0	/	20	/	/	
8:00 - 9:00	106	94	200	/	0	/	16	/	/	
9:00 - 10:00	80	71	151	/	0	/	12	/	/	

Results

Criteria	Hours Met	Hours Required	Warrants Met
Warrant 1a: Minimum Vehicular Volume	0	8	Not Met
Warrant 1b: Interruption of Continuous Traffic	0	8	Not Met
Warrant 2: Four-Hour Vehicular Volume	0	4	Not Met
Warrant 3: Peak Hour	0	1	Not Met
Multi-way Stop Applications (MWSA)	0	8	Not Met



*Note: For data outside of the graph range, check the minor street volume against the lower thresholds

Middle School Avenue **Existing (2025)**

City/County: Bemidji, MN

Intersection: Middle School Avenue & 15th Street

Study Data

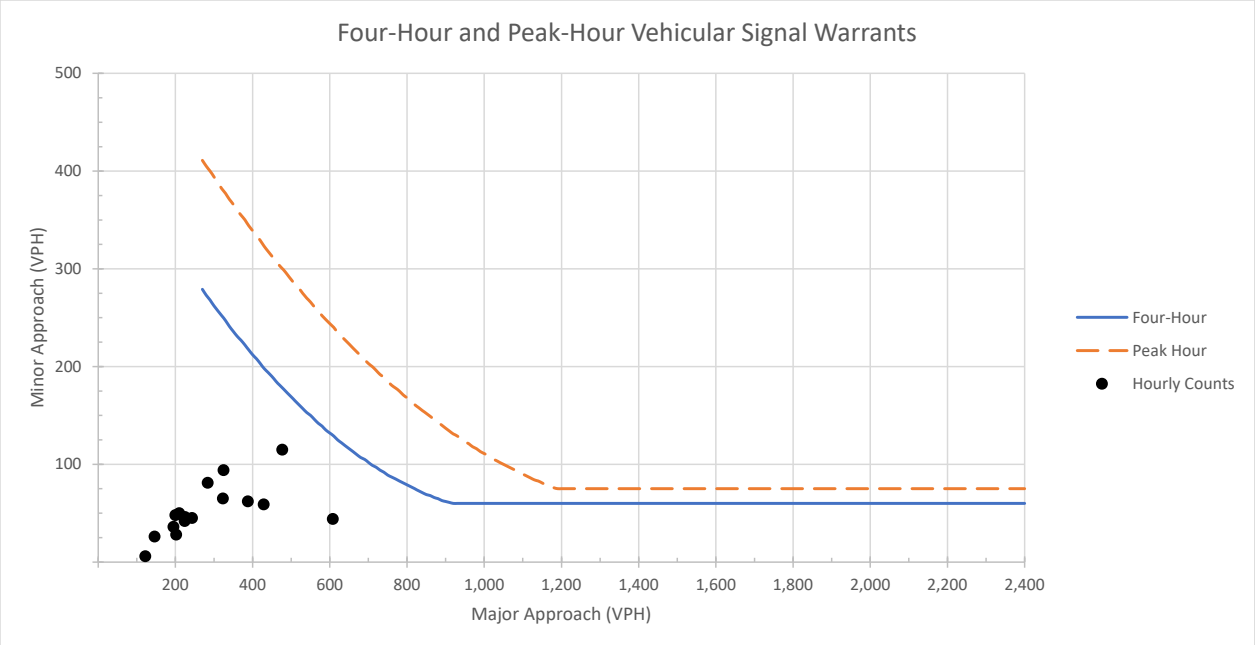
Date:	1/7/2026	Approach	Speed	Lanes	LT Vol.	LT Ln.	RT Vol.	RT Ln.
Population < 10,000:	Yes	Major 1:	45	2	100%	Incl.	100%	Incl.
Existing Signal:	No	Major 3:	45	2	100%	Incl.	100%	Incl.
0.70 Factor Used:	Yes	Minor 2:	-	0	100%	Incl.	100%	Excl.
0.80 Factor Used:	No	Minor 4:	35	1	100%	Incl.	0%	Excl.

Warrants Analysis

Time of Day	Major #1	Major #3	Total 1+3	Major 1A/1B 350/525	Minor #2	Minor #2 1A/1B 105/053	Minor #4	Minor #4 1A/1B 105/053	Both Met 1A/1B	MWSA Warrant
6:00 - 7:00	48	74	122	/	0	/	6	/	/	
7:00 - 8:00	372	236	608	X/X	0	/	44	/	/	
8:00 - 9:00	255	174	429	X/	0	/	59	/X	/	
9:00 - 10:00	116	108	224	/	0	/	42	/	/	
10:00 - 11:00	100	100	200	/	0	/	48	/	/	
11:00 - 12:00	100	125	225	/	0	/	46	/	/	
12:00 - 1:00	117	167	284	/	0	/	81	/X	/	
1:00 - 2:00	93	117	210	/	0	/	50	/	/	
2:00 - 3:00	146	177	323	/	0	/	65	/X	/	
3:00 - 4:00	262	215	477	X/	0	/	115	X/X	**X/**	
4:00 - 5:00	161	227	388	X/	0	/	62	/X	/	
5:00 - 6:00	153	172	325	/	0	/	94	/X	/	
6:00 - 7:00	97	105	202	/	0	/	28	/	/	
7:00 - 8:00	122	121	243	/	0	/	45	/	/	
8:00 - 9:00	98	97	195	/	0	/	36	/	/	
9:00 - 10:00	73	73	146	/	0	/	26	/	/	

Results

Criteria	Hours Met	Hours Required	Warrants Met
Warrant 1a: Minimum Vehicular Volume	1	8	Not Met
Warrant 1b: Interruption of Continuous Traffic	0	8	Not Met
Warrant 2: Four-Hour Vehicular Volume	0	4	Not Met
Warrant 3: Peak Hour	0	1	Not Met
Multi-way Stop Applications (MWSA)	0	8	Not Met



*Note: For data outside of the graph range, check the minor street volume against the lower thresholds

Forecast 2045 Signal Warrants

Middle School Avenue **Future (2045)**

City/County: Bemidji, MN
Intersection: Middle School Avenue & 23rd Street

Study Data

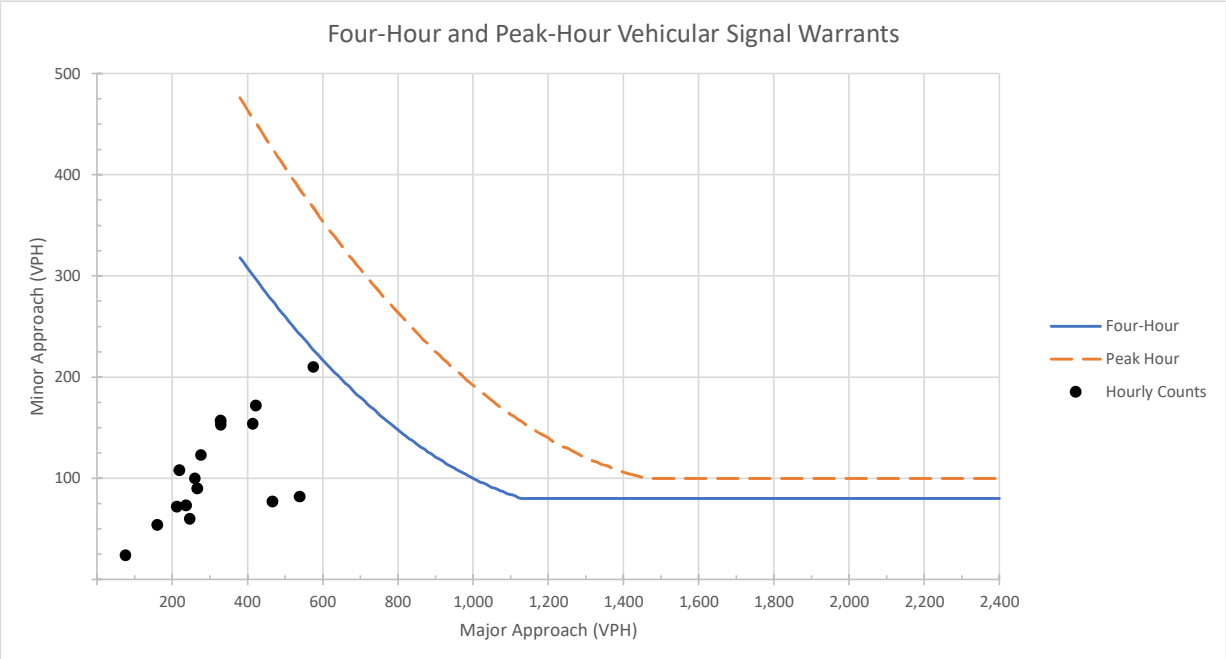
Date:	1/9/2026	Approach	Speed	Lanes	LT Vol.	LT Ln.	RT Vol.	RT Ln.
Population < 10,000:	No	Major 1:	35	1	100%	Incl.	100%	Incl.
Existing Signal:	No	Major 3:	35	1	100%	Incl.	100%	Incl.
0.70 Factor Used:	No	Minor 2:	30	1	100%	Incl.	100%	Excl.
0.80 Factor Used:	No	Minor 4:	30	1	100%	Incl.	100%	Excl.

Warrants Analysis

Time of Day	Major #1	Major #3	Total 1+3	Major 1A/1B 500/750	Minor #2	Minor #2 1A/1B 150/075	Minor #4	Minor #4 1A/1B 150/075	Both Met 1A/1B	MWSA Warrant
6:00 - 7:00	54	21	75	/	10	/	24	/	/	
7:00 - 8:00	313	226	539	X/	47	/	82	/X	/	
8:00 - 9:00	330	136	466	/	57	/	77	/X	/	
9:00 - 10:00	136	100	236	/	44	/	73	/	/	
10:00 - 11:00	134	112	246	/	49	/	60	/	/	
11:00 - 12:00	130	130	260	/	50	/	100	/X	/	
12:00 - 1:00	160	168	328	/	49	/	157	X/X	/	X
1:00 - 2:00	132	144	276	/	29	/	123	/X	/	
2:00 - 3:00	157	172	329	/	43	/	153	X/X	/	
3:00 - 4:00	369	206	575	X/	87	/X	210	X/X	X/	X
4:00 - 5:00	216	198	414	/	47	/	154	X/X	/	X
5:00 - 6:00	210	212	422	/	43	/	172	X/X	/	X
6:00 - 7:00	102	117	219	/	26	/	108	/X	/	
7:00 - 8:00	148	118	266	/	35	/	90	/X	/	
8:00 - 9:00	118	94	212	/	28	/	72	/	/	
9:00 - 10:00	89	71	160	/	21	/	54	/	/	

Results

Criteria	Hours Met	Hours Required	Warrants Met
Warrant 1a: Minimum Vehicular Volume	1	8	Not Met
Warrant 1b: Interruption of Continuous Traffic	0	8	Not Met
Warrant 2: Four-Hour Vehicular Volume	0	4	Not Met
Warrant 3: Peak Hour	0	1	Not Met
Multi-way Stop Applications (MWSA)	4	8	Not Met



*Note: For data outside of the graph range, check the minor street volume against the lower thresholds

Middle School Avenue **Future (2045)**

City/County: Bemidji, MN

Intersection: Middle School Avenue & Parking Lots

Study Data

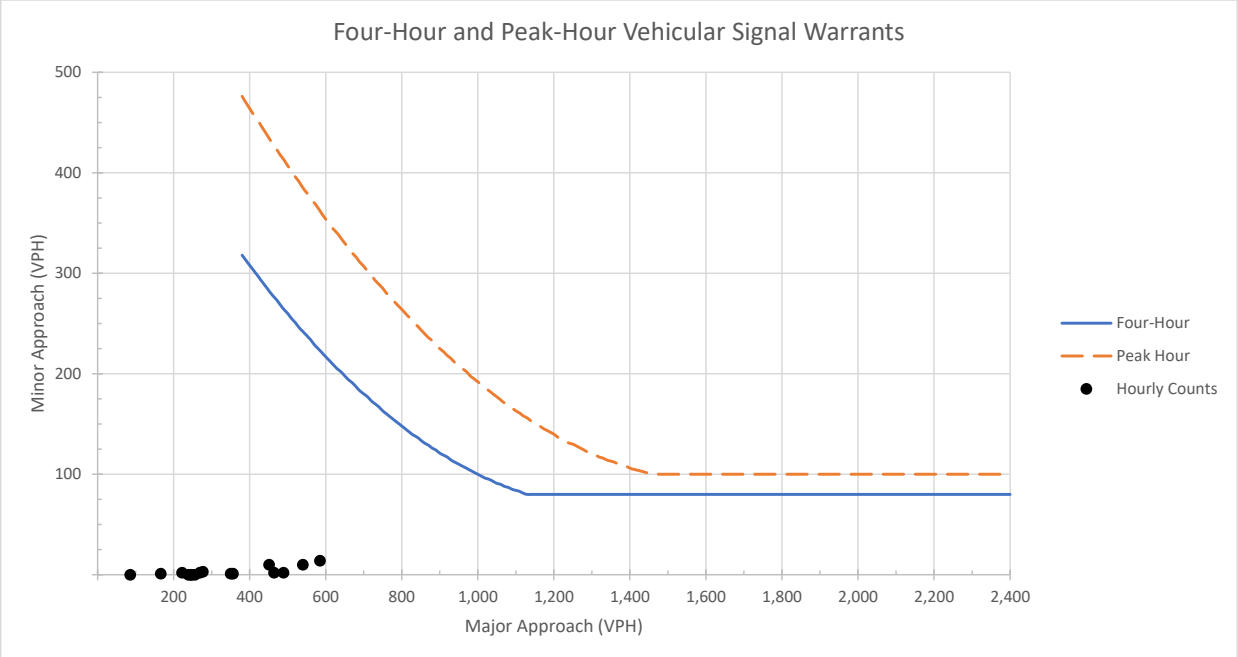
Date:	1/7/2026	Approach	Speed	Lanes	LT Vol.	LT Ln.	RT Vol.	RT Ln.
Population < 10,000:	No	Major 1:	35	1	100%	Excl.	100%	Incl.
Existing Signal:	No	Major 3:	35	1	100%	Excl.	100%	Incl.
0.70 Factor Used:	No	Minor 2:	15	0	0%	Excl.	0%	Excl.
0.80 Factor Used:	No	Minor 4:	15	1	100%	Incl.	0%	Excl.

Warrants Analysis

Time of Day	Major #1	Major #3	Total 1+3	Major 1A/1B 500/750	Minor #2	Minor #2 1A/1B 150/075	Minor #4	Minor #4 1A/1B 150/075	Both Met 1A/1B	MWSA Warrant
6:00 - 7:00	58	28	86	/	0	/	0	/	/	
7:00 - 8:00	316	224	540	X/	0	/	10	/	/	
8:00 - 9:00	312	139	451	/	0	/	10	/	/	
9:00 - 10:00	137	102	239	/	0	/	0	/	/	
10:00 - 11:00	130	117	247	/	0	/	0	/	/	
11:00 - 12:00	130	126	256	/	0	/	0	/	/	
12:00 - 1:00	163	193	356	/	0	/	1	/	/	
1:00 - 2:00	133	136	269	/	0	/	2	/	/	
2:00 - 3:00	159	191	350	/	0	/	1	/	/	
3:00 - 4:00	340	245	585	X/	0	/	14	/	/	
4:00 - 5:00	209	255	464	/	0	/	2	/	/	
5:00 - 6:00	213	276	489	/	0	/	2	/	/	
6:00 - 7:00	100	145	245	/	0	/	0	/	/	
7:00 - 8:00	145	132	277	/	1	/	3	/	/	
8:00 - 9:00	116	106	222	/	1	/	2	/	/	
9:00 - 10:00	87	79	166	/	0	/	1	/	/	

Results

Criteria	Hours Met	Hours Required	Warrants Met
Warrant 1a: Minimum Vehicular Volume	0	8	Not Met
Warrant 1b: Interruption of Continuous Traffic	0	8	Not Met
Warrant 2: Four-Hour Vehicular Volume	0	4	Not Met
Warrant 3: Peak Hour	0	1	Not Met
Multi-way Stop Applications (MWSA)	0	8	Not Met



*Note: For data outside of the graph range, check the minor street volume against the lower thresholds

Middle School Avenue **Future (2045)**

City/County: Bemidji, MN
Intersection: Middle School Avenue & North School Access

Study Data

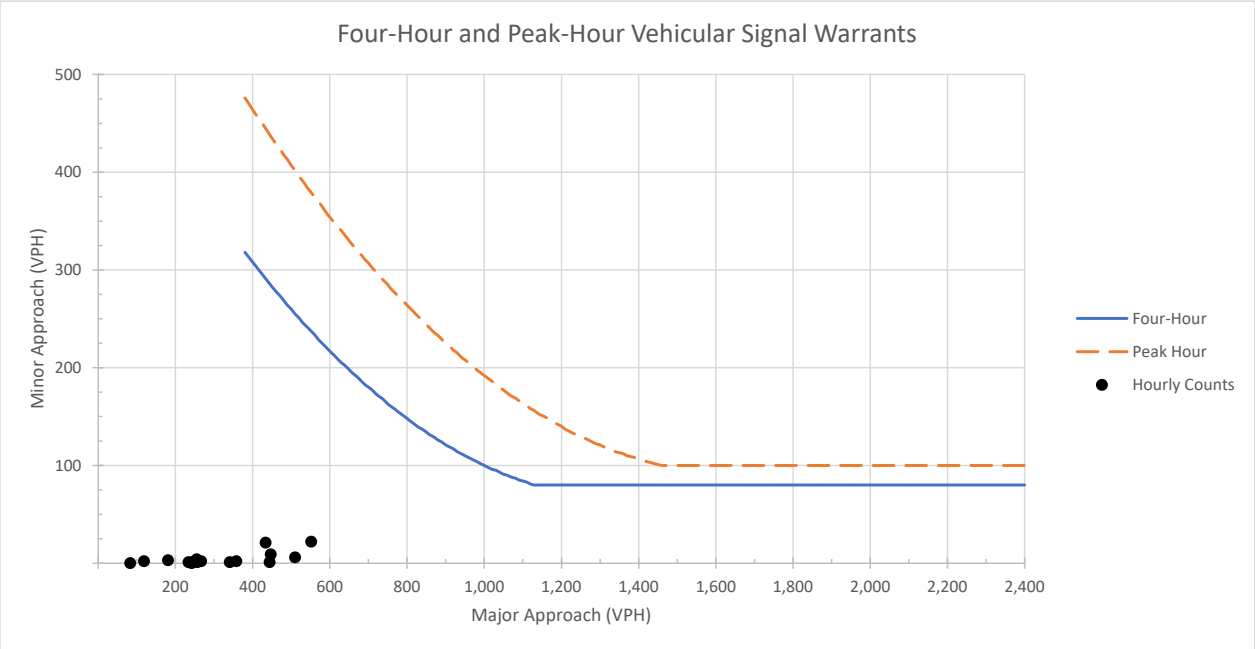
Date:	1/7/2026	Approach	Speed	Lanes	LT Vol.	LT Ln.	RT Vol.	RT Ln.
Population < 10,000:	No	Major 1:	35	1	100%	Incl.	100%	Incl.
Existing Signal:	No	Major 3:	35	1	100%	Incl.	100%	Incl.
0.70 Factor Used:	No	Minor 2:	-	0	100%	Incl.	100%	Excl.
0.80 Factor Used:	No	Minor 4:	15	1	100%	Incl.	0%	Excl.

Warrants Analysis

Time of Day	Major #1	Major #3	Total 1+3	Major 1A/1B 500/750	Minor #2	Minor #2 1A/1B 150/075	Minor #4	Minor #4 1A/1B 150/075	Both Met 1A/1B	MWSA Warrant
6:00 - 7:00	58	25	83	/	0	/	0	/	/	
7:00 - 8:00	304	206	510	X/	0	/	6	/	/	
8:00 - 9:00	302	132	434	/	0	/	21	/	/	
9:00 - 10:00	132	102	234	/	0	/	1	/	/	
10:00 - 11:00	128	116	244	/	0	/	1	/	/	
11:00 - 12:00	131	126	257	/	0	/	1	/	/	
12:00 - 1:00	164	194	358	/	0	/	2	/	/	
1:00 - 2:00	128	139	267	/	0	/	2	/	/	
2:00 - 3:00	157	184	341	/	0	/	1	/	/	
3:00 - 4:00	309	243	552	X/	0	/	22	/	/	
4:00 - 5:00	189	255	444	/	0	/	1	/	/	
5:00 - 6:00	168	279	447	/	0	/	9	/	/	
6:00 - 7:00	98	144	242	/	0	/	0	/	/	
7:00 - 8:00	131	124	255	/	0	/	4	/	/	
8:00 - 9:00	93	88	181	/	0	/	3	/	/	
9:00 - 10:00	61	58	119	/	0	/	2	/	/	

Results

Criteria	Hours Met	Hours Required	Warrants Met
Warrant 1a: Minimum Vehicular Volume	0	8	Not Met
Warrant 1b: Interruption of Continuous Traffic	0	8	Not Met
Warrant 2: Four-Hour Vehicular Volume	0	4	Not Met
Warrant 3: Peak Hour	0	1	Not Met
Multi-way Stop Applications (MWSA)	0	8	Not Met



*Note: For data outside of the graph range, check the minor street volume against the lower thresholds

Middle School Avenue **Future (2045)**

City/County: Bemidji, MN

Intersection: Middle School Avenue & South School Access

Study Data

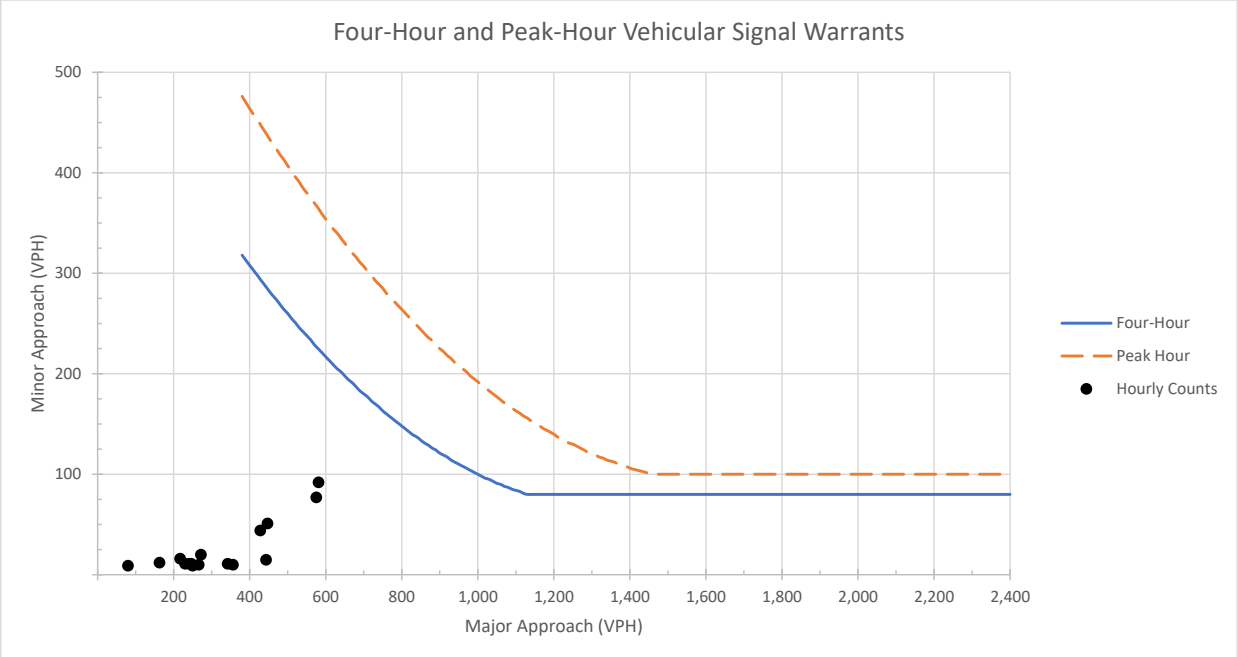
Date:	1/7/2026	Approach	Speed	Lanes	LT Vol.	LT Ln.	RT Vol.	RT Ln.
Population < 10,000:	No	Major 1:	35	1	100%	Incl.	100%	Excl.
Existing Signal:	No	Major 3:	35	1	100%	Excl.	100%	Incl.
0.70 Factor Used:	No	Minor 2:	15	1	100%	Incl.	100%	Excl.
0.80 Factor Used:	No	Minor 4:	15	1	100%	Incl.	0%	Excl.

Warrants Analysis

Time of Day	Major #1	Major #3	Total 1+3	Major 1A/1B 500/750	Minor #2	Minor #2 1A/1B 150/075	Minor #4	Minor #4 1A/1B 150/075	Both Met 1A/1B	MWSA Warrant
6:00 - 7:00	57	23	80	/	9	/	0	/	/	
7:00 - 8:00	385	190	575	X/	11	/	77	/X	/	
8:00 - 9:00	279	149	428	/	12	/	44	/	/	
9:00 - 10:00	132	98	230	/	11	/	9	/	/	
10:00 - 11:00	129	112	241	/	11	/	10	/	/	
11:00 - 12:00	123	123	246	/	11	/	1	/	/	
12:00 - 1:00	154	188	342	/	11	/	6	/	/	
1:00 - 2:00	129	137	266	/	10	/	7	/	/	
2:00 - 3:00	174	182	356	/	10	/	9	/	/	
3:00 - 4:00	323	258	581	X/	10	/	92	/X	/	
4:00 - 5:00	195	248	443	/	10	/	15	/	/	
5:00 - 6:00	169	278	447	/	8	/	51	/	/	
6:00 - 7:00	107	143	250	/	8	/	9	/	/	
7:00 - 8:00	143	129	272	/	8	/	20	/	/	
8:00 - 9:00	114	103	217	/	6	/	16	/	/	
9:00 - 10:00	86	77	163	/	5	/	12	/	/	

Results

Criteria	Hours Met	Hours Required	Warrants Met
Warrant 1a: Minimum Vehicular Volume	0	8	Not Met
Warrant 1b: Interruption of Continuous Traffic	0	8	Not Met
Warrant 2: Four-Hour Vehicular Volume	0	4	Not Met
Warrant 3: Peak Hour	0	1	Not Met
Multi-way Stop Applications (MWSA)	0	8	Not Met



*Note: For data outside of the graph range, check the minor street volume against the lower thresholds

Middle School Avenue **Future (2045)**

City/County: Bemidji, MN
Intersection: Middle School Avenue & 15th Street

Study Data

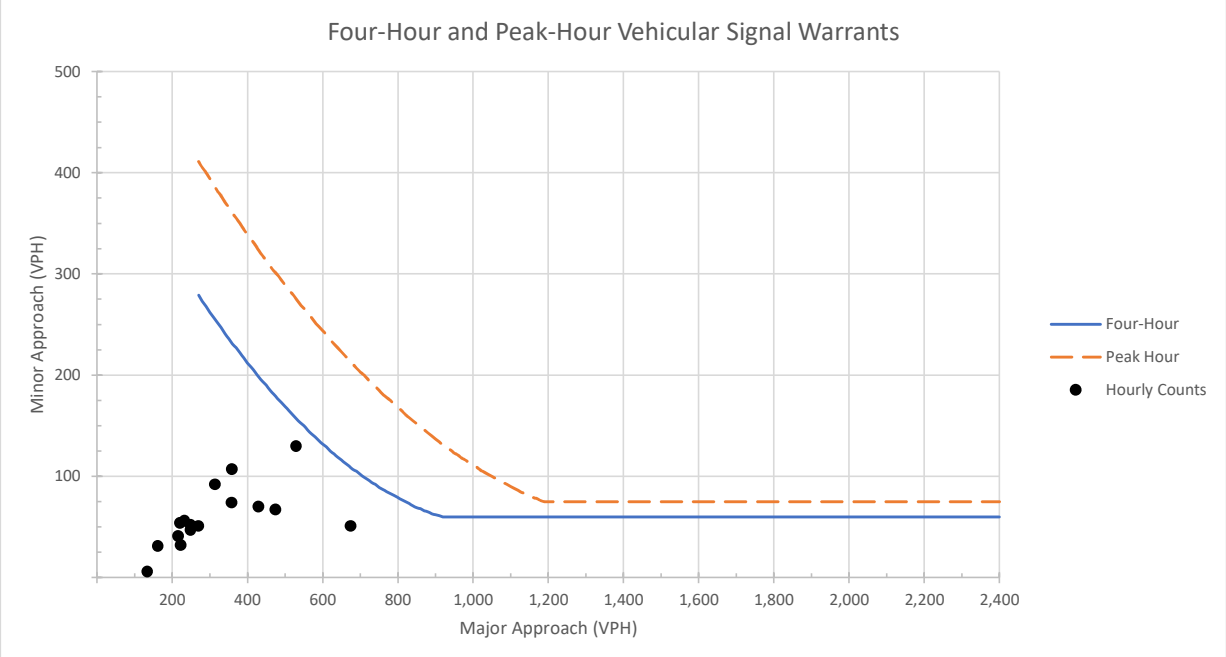
Date:	1/9/2026	Approach	Speed	Lanes	LT Vol.	LT Ln.	RT Vol.	RT Ln.
Population < 10,000:	Yes	Major 1:	45	2	100%	Incl.	100%	Incl.
Existing Signal:	No	Major 3:	45	2	100%	Incl.	100%	Incl.
0.70 Factor Used:	Yes	Minor 2:	-	0	100%	Incl.	100%	Excl.
0.80 Factor Used:	No	Minor 4:	35	1	100%	Incl.	0%	Excl.

Warrants Analysis

Time of Day	Major #1	Major #3	Total 1+3	Major 1A/1B 350/525	Minor #2	Minor #2 1A/1B 105/053	Minor #4	Minor #4 1A/1B 105/053	Both Met 1A/1B	MWSA Warrant
6:00 - 7:00	52	81	133	/	0	/	6	/	/	
7:00 - 8:00	412	262	674	X/X	0	/	51	/	/	
8:00 - 9:00	281	193	474	X/	0	/	67	/X	/	
9:00 - 10:00	128	120	248	/	0	/	47	/	/	
10:00 - 11:00	110	110	220	/	0	/	54	/X	/	
11:00 - 12:00	110	138	248	/	0	/	52	/	/	
12:00 - 1:00	128	185	313	/	0	/	92	/X	/	
1:00 - 2:00	102	130	232	/	0	/	56	/X	/	
2:00 - 3:00	160	197	357	X/	0	/	74	/X	/	
3:00 - 4:00	289	240	529	X/X	0	/	130	X/X	**X/X**	
4:00 - 5:00	179	250	429	X/	0	/	70	/X	/	
5:00 - 6:00	168	190	358	X/	0	/	107	X/X	**X/**	
6:00 - 7:00	106	116	222	/	0	/	32	/	/	
7:00 - 8:00	135	134	269	/	0	/	51	/	/	
8:00 - 9:00	108	107	215	/	0	/	41	/	/	
9:00 - 10:00	81	80	161	/	0	/	31	/	/	

Results

Criteria	Hours Met	Hours Required	Warrants Met
Warrant 1a: Minimum Vehicular Volume	2	8	Not Met
Warrant 1b: Interruption of Continuous Traffic	1	8	Not Met
Warrant 2: Four-Hour Vehicular Volume	0	4	Not Met
Warrant 3: Peak Hour	0	1	Not Met
Multi-way Stop Applications (MWSA)	0	8	Not Met

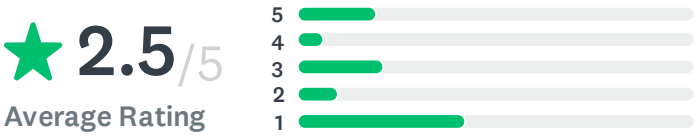


*Note: For data outside of the graph range, check the minor street volume against the lower thresholds

APPENDIX D: PUBLIC INPUT SURVEY RESULTS

Q1 Rate based on if you would support or oppose an Added Median Pedestrian Refuge.

Answered: 212 Skipped: 17

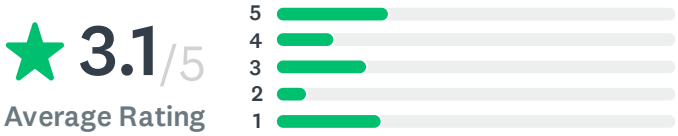


#	SHARE ANY COMMENTS YOU HAVE ABOUT THIS OPTION.	DATE
1	Maybe work on cleaning up the drugs on the streets and do something about all the homeless wandering around. This city has become somewhere that I don't want to live.	4/11/2026 1:40 PM
2	Less disruption to flow of traffic outside of school hours	4/9/2026 1:50 PM
3	It is my belief that adding the median/crossing area at this point will increase the amount of attempts of student drop offs in the middle of traffic - increasing the stopping and interrupting the flow of traffic and drastically increasing the safety concerns!	4/9/2026 12:33 PM
4	Inefficient use of taxpayer dollars.	4/8/2026 3:11 PM
5	Having driven round-abouts in Europe, I think the US's ones are ill-designed. If your build them, design them right.	4/8/2026 10:24 AM
6	An added sidewalk does not add any benefit to vehicle congestion. Look at the existing school parking lot dynamic before "fixing" and making bigger roads.	4/8/2026 9:04 AM
7	Connect the north lot to the north access for the middle school and remove the intersection of the north lots and middle school Ave. Re route ALL of the middle school traffic. In the south access, out the north access or vice versa. Should consider vehicle/pedestrian interaction. That also causes a lot of congestion in these areas.	4/8/2026 8:35 AM
8	this is good but in no way fixes the major concern which is the traffic	4/7/2026 8:35 PM
9	Full movement will be nice during low traffic times. Left turns at the north lot are a problem during high traffic times. As long as there is access to turn right during high traffic times the those wishing to turn left can wait.	4/7/2026 5:18 PM
10	I believe the thick traffic causes more of a safety issue than the length of the crossing.	4/7/2026 4:50 PM
11	I think it needs to be more safe for the pedestrians	4/7/2026 1:48 PM
12	Too close to where buses exit out of middle parking lot.	4/7/2026 1:29 PM
13	I do not feel taht this plan addressed the issue of people needing to turn left out of the parking lots. I also would not like to see the loss of the green space due to the widening of the road and adding the walkway/crossing.	4/7/2026 10:37 AM
14	This looks to need the least construction so would not be too disruptive; I like the full movement in and out, and the extra pedestrian median is good.	4/7/2026 9:15 AM
15	Does not solve the problem and will likely increase issues.	4/7/2026 3:12 AM
16	Concerns with pedestrian crossing three lanes.	4/7/2026 1:33 AM
17	Why not make an over the road walking and bike path? It would be alot safer then having kids crossing the road	4/6/2026 11:41 PM

18	If the roads we already have, no round abouts	4/6/2026 11:16 PM
19	Not much different than the current layout.	4/6/2026 10:16 PM
20	Wouldn’t fix the problem	4/6/2026 7:21 PM
21	Please for the love of Christ himself, give money to the library that just had to forcefully let their staff go instead of funding dumb idiotic projects. This has been fine for YEARS it doesn’t need improvements. People leave early enough to drop their kids off. How are we this inconsiderate????????	4/6/2026 6:24 PM
22	You really need to re construct the middle school parking lot and in addition to an over head walk way going to and from middle school school	4/6/2026 4:51 PM
23	It's not super clear what exactly a refuge is and how it works, but I support anything in this town to help pedestrians because it's a scary walking town	4/6/2026 4:26 PM
24	This option is worst for me as a motorist.	4/6/2026 4:26 PM
25	I dont support any option where students are crossing Middle School Drive. Utilize the roundabout and the parking at the north edge of the school property by ballfield. No student would need to be crossing any street	4/6/2026 3:59 PM
26	Kids standing in the middle of the road - even with a sidewalk spot to stand - sounds like a major safety issue. I know in theory the kids will wait to walk but it’s chaotic after school and sounds even more unsafe for them. This seems to be the best option for people to come into the parking lot from the left and the right.	4/6/2026 3:34 PM
27	Nobody understands how to drive in a roundabout. Very few anyway. This option adds to the problem of people/kids trying to move through someplace most drivers can’t navigate already.	4/6/2026 3:14 PM
28	Please connect these trails to the high school and gene dillion. Or at the least connect them to the trail by the intersection of Adam's and 15th.	4/6/2026 3:13 PM
29	Should be a pedestrian bridge. The round about only speeds up the traffic. Leaving no brake in the traffic flow Dangerous for foot traffic and two wheelers. If you want to slow traffic use speed bumps.	4/6/2026 2:32 PM
30	Seems like it would create more congestion from foot traffic.	4/6/2026 1:51 PM
31	Any extra crosswalks or sidewalks for safety is important.	4/6/2026 1:38 PM
32	I see this option as more construction for less improvement to the congestion of that area	4/6/2026 1:18 PM
33	Puts kids in the middle of the road which is unsafe	4/6/2026 1:15 PM
34	Kids crossing here all the time in warmer months.	4/6/2026 1:03 PM

Q2 Rate based on if you would support or oppose a 3/4 access at the North Lots.

Answered: 215 Skipped: 14



#	SHARE ANY COMMENTS YOU HAVE ABOUT THIS OPTION.	DATE
1	No left turn is great.	4/10/2026 8:55 PM
2	Buses have to use the round about when leaving the school instead of turning left. That will be a mess!	4/9/2026 11:56 PM
3	Manageable disruption to flow of traffic outside of school hours	4/9/2026 1:50 PM
4	It is my belief that adding the median/crossing area at this point will increase the amount of attempts of student drop offs in the middle of traffic - increasing the stopping and interrupting the flow of traffic and drastically increasing the safety concerns!	4/9/2026 12:33 PM
5	Inefficient use of taxpayer dollars, and confusing.	4/8/2026 3:11 PM
6	I believe option B would be the best for traffic flow as well as ease of in and out of parking lots	4/8/2026 2:39 PM
7	Force the traffic leaving the school. Region DOT seems to prefer these for highways with “J-turns”. Seems like a similar concept. Option doesn’t create an overhaul for the public roadway. Look to create space on school grounds, not make roads bigger. Why is another sidewalk necessary? The sports fields lots don’t get used for school pick up. Added sidewalk seems unnecessary for the issue at hand.	4/8/2026 9:04 AM
8	Will help during high traffic times but is too restrictive without a southern roundabout to redirect traffic north. Will push more traffic to the roundabouts.	4/7/2026 5:18 PM
9	I'm fine with whatever it's best for pedestrians	4/7/2026 1:48 PM
10	This resolves a part of the issue, and would be my next choice for a traffic flow solution on Middle School road.	4/7/2026 10:37 AM
11	I like the full movement into parking lots and the right turns only would be fine; left turns take a long time at those spots anyway but it could be difficult for pedestrians to cross.	4/7/2026 9:15 AM
12	Best option	4/7/2026 7:09 AM
13	Starts improving problem. But also, people are dumb. They will slow down traffic by trying to force a left turn.	4/7/2026 3:12 AM
14	Do not love the idea of losing any more green space again concerned about pedestrians crossing three lanes	4/7/2026 1:33 AM
15	Fix what we have dont fix what's not broken, waste of money	4/6/2026 11:16 PM
16	Don’t love it, but it’s better than the other two options.	4/6/2026 9:40 PM
17	Guaranteed to get some dingleberries who refuse to turn right out of parking lot and will still wait to turn left because "that's how its always been". *eyeroll*	4/6/2026 7:51 PM

18	A lot of people will be on conifer (buses ect..)to make a left onto 15th. Cause you don’t need a ton of buses going through to get back on 15th that need to go to nymore ect..,	4/6/2026 7:31 PM
19	Seems like a high crash risk at the intersection	4/6/2026 7:21 PM
20	Helps prevent accidents from left turns out of middle school	4/6/2026 7:01 PM
21	Please for the love of Christ himself, give money to the library that just had to forcefully let their staff go instead of funding dumb idiotic projects. This has been fine for YEARS it doesn’t need improvements. People leave early enough to drop their kids off. How are we this inconsiderate????????	4/6/2026 6:24 PM
22	I feel people will get confused about where they can turn left and where they can't, and surprise illegal left turns will likely happen.	4/6/2026 5:45 PM
23	Again it’s not going to do anything like original option looking at it all wrong	4/6/2026 4:51 PM
24	Force traffic to turn right out of the middle school towards the roundabout	4/6/2026 4:49 PM
25	I would never use this and haven't used the middle school, I drive on this road but never in and out of the school so I'm not sure what works best	4/6/2026 4:26 PM
26	This option is best for me as a motorist.	4/6/2026 4:26 PM
27	I dont support any option where students are crossing Middle School Drive. Utilize the roundabout and the parking at the north edge of the school property by ballfield. No student would need to be crossing any street	4/6/2026 3:59 PM
28	best flow option	4/6/2026 3:36 PM
29	That parking lot is already a mess trying to get out and takes lots of time. Eliminating the option to go left would increase the congestion of that parking lot after school even more.	4/6/2026 3:34 PM
30	Please connect these trails to the high school and gene dillion. Or at the least connect them to the trail by the intersection of Adam's and 15th.	4/6/2026 3:13 PM
31	Taking away left turning would make sense, if you were to put a round about on 15th Street.	4/6/2026 2:32 PM
32	U-turn will create more traffic and accidents.	4/6/2026 1:51 PM
33	I think having one entrance to the north lot that is right only would be helpful. The roundabout is not that far away and may reduce the number of vehicles on middle school drive when the busses are pulling out of the lot.	4/6/2026 1:18 PM
34	With the roundabout installed in 2025 they can turn around “to go left” coming out of the middleschool lot but what about people turning left out of the soccer fields and being forced to go right. Where’s their “turn around”?	4/6/2026 1:03 PM

Q3 Rate based on if you would support or oppose a Right In, Right Out access at the North Lots.

Answered: 220 Skipped: 9

#	SHARE ANY COMMENTS YOU HAVE ABOUT THIS OPTION.	DATE
1	Makes it easier and more efficient for busses to exit when leaving the Middle school	4/11/2026 2:13 PM
2	I support as long as there is a round about on the south end of the street. Otherwise it's too restrictive.	4/10/2026 8:55 PM
3	Also require only right turn exit from the main entrance.	4/10/2026 3:29 PM
4	It would be safer and smarter to add a pedestrian bridge or tunnel	4/10/2026 2:31 PM
5	Buses have to use the round about when leaving the school instead of turning left. That will be a mess!	4/9/2026 11:56 PM
6	Maximum disruption to flow of traffic outside of school hours	4/9/2026 1:50 PM
7	It is my belief that adding the median/crossing area at this point will increase the amount of attempts of student drop offs in the middle of traffic - increasing the stopping and interrupting the flow of traffic and drastically increasing the safety concerns!	4/9/2026 12:33 PM
8	I like this option but if I am coming from the north and would normally turn left where is it that I am going to turn around? Will there be another round about placed at the intersection of 15th and middle school rd???	4/8/2026 6:45 PM
9	Inefficient use of taxpayer dollars, and unnecessary	4/8/2026 3:11 PM
10	Paul Bunyan Drive is HORRIBLE. NEAR SIMONSIONS AND BURGER KING FIX THAT SHIT BEFORE YOU START ADDING MORE SHIT. You also need to work on the pot holes on BirchMont Beach road because THAT IS NOT OKAY MY CAR FEELS LIKE ITS GOING TO FALL APARRRRTTTTTT	4/8/2026 10:55 AM
11	An over street stop light would be good here for the bus dismissal instead of a traffic guard with a cone. It’s very confusing when there’s a line and you’ve never seen what goes on before.	4/8/2026 9:08 AM
12	I think this is the best of 3 options but a more encompassing plan involving the traffic on or within middle school property should be evaluated as that is likely a better answer.	4/8/2026 8:35 AM
13	Too restrictive. Will keep traffic flowing during high traffic times, but has no flexibility.	4/7/2026 5:18 PM
14	Seems like the quickest and simplest fix	4/7/2026 4:50 PM
15	I support the safest option for pedestrians over the convenience of drivers. It's barely an inconvenience for drivers to go a little further	4/7/2026 1:48 PM
16	Would cause conjunction issues for buses exiting.	4/7/2026 1:29 PM
17	I feel like this is the best option for traffic and pedestrian safety. The pros outway the cons. We live in an area where we have to make a j-turn to get to town. I feel that the safety of	4/7/2026 10:37 AM

	crossing the highway outweighs the extra few minutes to make the j-turn. We have adjusted and feel that the adjustment can be made by those entering & exiting the middle school lots as well.	
18	This appears to be the most controlled and predictable option, which would be ideal for pedestrian use.	4/7/2026 10:22 AM
19	The reduced crash risk, focus on pedestrian safety and protection/enhancement of green space make this the clear choice	4/7/2026 10:20 AM
20	The median down the whole corridor feels very restrictive and I would not like the extra driving	4/7/2026 9:15 AM
21	This would be very inconvenient for those coming from the north to drop off. Especially those with multiple schools that already have 3-4 schools to drop off/pick up.	4/7/2026 5:40 AM
22	If people are coming from the round about direction, they will not be able to use that parking lot. The end of the road (near bus garage) is almost impossible to turn left at for folks to turn around to be able to access the parking lot. Now, if you put a round about at the intersection of Middle School road and 15th st NW, then I would be in support of this.	4/7/2026 5:22 AM
23	People are dumb. "Guide rails" will work well. Very short travel time added. Good solution.	4/7/2026 3:12 AM
24	Decreases delay during dismissal time. As a traffic calming presence. Most importantly, it has the lowest risk of potential traffic accidents. This to me seems like the best out of the three you gave me and the only one that I would say absolutely makes all the sense to do. It seems the safest for not only car movement, but pedestrian as well.	4/7/2026 1:33 AM
25	Add a walking/biking bridge over the road so their is noone crossint the actually road. And it would be a benefical option	4/6/2026 11:41 PM
26	Waste stop wasting our money	4/6/2026 11:16 PM
27	Those coming from the roundabout, heading south, do not have a great way to get to the school.	4/6/2026 10:16 PM
28	This would work better if you had a roundabout on the intersection of 15th and middle school drive.	4/6/2026 9:40 PM
29	The brief added time for people to turn right out and go up to the roundabout to get back going towards the left would give ample time for those already going towards the left to pass through the road. Decreasing the time for traffic to build up. Only ideal option from the options presented.	4/6/2026 7:21 PM
30	Only if there’s another roundabout where 15th st meets middle school drive.	4/6/2026 7:20 PM
31	Make buses enter somewhere other than via middle school road... Completely different access. Get them off Middle Scho Rd!	4/6/2026 7:11 PM
32	Does this help bicyclists?	4/6/2026 6:44 PM
33	Please for the love of Christ himself, give money to the library that just had to forcefully let their staff go instead of funding dumb idiotic projects. This has been fine for YEARS it doesn’t need improvements. People leave early enough to drop their kids off. How are we this inconsiderate????????	4/6/2026 6:24 PM
34	The only things I like about it is the potential for green space and safety for pedestrians, though I'm not sure how much safer it really makes them. Otherwise it just seems like a big inconvenience for both drivers and pedestrians.	4/6/2026 5:45 PM
35	Option C, good job!	4/6/2026 5:25 PM
36	None will remedy any issue just make them more confusing you out in a round about that make traffic more abundant overhead walk way and re construct the middle school parking lot with an exit going behind baseball field on north side of middle school	4/6/2026 4:51 PM
37	Force traffic to turn right out of the middle school towards the roundabout	4/6/2026 4:49 PM
38	This seems to make the most sense. However I'm unsure as to why there are pedestrians crossing on this road? Where are they going? Whatever makes it easy for them to get across would be helpful, lights flashing, more space so it's not dangerous. I typically avoid this road when school is in or getting out.	4/6/2026 4:26 PM

39	As a motorist this option seems no better or worse than the current situation.	4/6/2026 4:26 PM
40	This option works the same as the high school. The busses turn around at the roundabout	4/6/2026 4:14 PM
41	I dont support any option where students are crossing Middle School Drive. Utilize the roundabout and the parking at the north edge of the school property by ballfield. No student would need to be crossing any street	4/6/2026 3:59 PM
42	Plant trees in the median depending on how wide it would be. Natural vegetation would look better than concrete. Trees would also serve as a buffer between the two lanes.	4/6/2026 3:56 PM
43	This makes the most sense and seems the safest for pedestrians and motorists.	4/6/2026 3:37 PM
44	Again eliminating the option to go left will increase the amount of time overall all cars are waiting to exit.	4/6/2026 3:34 PM
45	This is the best option.	4/6/2026 3:27 PM
46	Please consider a roundabout on intersection of 15th and Adam's! That will help the back up of traffic on 15th during this high use time.	4/6/2026 3:13 PM
47	This seems to be the safest option and I think safety should be one of the highest priorities.	4/6/2026 2:40 PM
48	How about the traffic of the opposite side. Make s u turn on 15th Street? Henceforth two roundabouts. Let's keep fixing our traffic untill it breaks. Geez.	4/6/2026 2:32 PM
49	Creating or encouraging a paved pathway to new roundabout parking lot by the disc golf course could be extremely helpful	4/6/2026 1:51 PM
50	This is the best option. Next best would be a round about at the bus exit.	4/6/2026 1:40 PM
51	I think this would create more safety -I do hope that traffic does not get jammed on 5th (Turning onto Middle School Drive) and back it all up. I would almost put another round about at the end to keep traffic moving!	4/6/2026 1:38 PM
52	I think that is too restrictive for that area during the congestion times. I also feel that having a full median in the middle of that road all the way to the roundabout will increase the number of kids in the roadways. 11-14 year olds are impulsive and often lack the ability to analyze the consequences of their actions before they act. Having a spot where they can walk basically in the middle of traffic seems like we are setting up a group of children to take unecessary risks that could potentially cause a lot of harm and trauma to not only themselves but other people and families as well. Another consideration with this median option is that there are a lot of very young, inexperienced high school drivers in that area at the same time, so it’s like we are combining two very high risk situations into one. I just feel that this option has too high of a potential for something really bad to happen, and I think it’s one of those plans that may look the best on paper, but does not turn out to be in real life. I would hate to see our young teens put into that situation, and I think eliminating this option from consideration is doing what is in the best interests of the children and families who will be spending the most time in this area each week. We have the opportunity to prevent a tragedy, it needs to be taken seriously.	4/6/2026 1:18 PM
53	With the roundabout installed in 2025 they can turn around “to go left” coming out of the middleschool lot but what about people turning left out of the soccer fields and being forced to go right. Where’s their “turn around”?	4/6/2026 1:03 PM

Q4 Please share any other feedback or comments you have about the corridor project. (For example: Are there specific locations you'd like to see a crosswalk? Are there issues you have observed you feel these options do not address?)

Answered: 69 Skipped: 160

#	RESPONSES	DATE
1	I would like to see a roundabout at 15th Street and Middle School Drive. It would make that intersection so much safer for everyone with the sun blinding everyone that has to turn there in the morning. It would reduce congestion during school dismissal when the bus traffic is heaviest.	4/11/2026 2:18 PM
2	The lack of a pedestrian path to the paul bunyan trail is a problem. The fact that you can't ride on pedestrian trails between the Ms, hs and Gene dillon is a problem.	4/10/2026 8:58 PM
3	Would be nice to see the sidewalk run all the way down to 15th. There's a lot of people that utilize that stretch of road to walk/run, and if the sidewalk on 23rd went the full length to 15th to get people to the wide shoulders, I feel it would be safer for all pedestrians.	4/10/2026 4:19 PM
4	Pedestrian bridge or tunnel	4/10/2026 2:33 PM
5	I SUPPORT THE ROUNDABOUT	4/9/2026 1:57 PM
6	Wondering why so many roundabouts? There always seems to be a backup of traffic during morning commutes down Fifth street and many people still treat as a four way stop. Keep it as is and spend the money elsewhere such as road repairs.	4/9/2026 1:37 PM
7	Roundabouts are by far the safest options along this whole area for vehicle traffic. An additional change would be a separate bus-drop off-staff parking entrances/exists. Creating bus only entrance/exit separate from the staff parking and student/parent drop offs would also decrease safety concerns and flow of traffic concerns. Likely concerns unrelated to the Middle School Drive projections.	4/9/2026 12:36 PM
8	The congestion is not a primary concern, the city needs to focus on areas experiencing worse congestion and deterioration.	4/8/2026 3:12 PM
9	I believe a bigger need for a roundabout or stoplight for safety would be between the Sanford clinic and Hannah ave. Cars fly off the round about and the cars on Hannah ave turning into traffic have very little reaction time.	4/8/2026 11:07 AM
10	No more round abouts. 4 way stops or lights make more sense with buses, snow and ice.	4/8/2026 10:36 AM
11	Use two lanes. One for exiting vehicles and one for thru traffic	4/8/2026 10:28 AM
12	The crossing guard with a cone that lets the busses out is a problem. It's confusing and I'm sure someone can argue what authority a middle school employee with an orange vest has to shut down a city street. A city traffic light would help with that problem.	4/8/2026 9:14 AM
13	Added roundabout is least desirable. Look at the school property and try to find solutions that modify the school grounds instead of the public roadway.	4/8/2026 9:06 AM
14	Middle school-15th and 15-Adams avenue also need to be addressed. I live at the end of 15th and have to wait for up to 10-15 minutes to cross Adam's. The amount of traffic and pedestrians between the high school, middle school and general Dillon elementary is unreasonable and needs to be mitigated.	4/8/2026 8:23 AM
15	roundabout constructed at 15th and Middle school drive	4/8/2026 7:47 AM
16	Crosswalk at the main entrance or safety lane for those walking south on Middle School Drive. Forcing pedestrians to the north lot exit will be safer with the secondary exit across from the fields.	4/7/2026 5:21 PM

17	Several issues in regards to buses getting in or out of middle school	4/7/2026 1:37 PM
18	It was not shared if the new crosswalk will have a signal, or not. We do not want middle school students making the decision to dart between cars to cross a road.	4/7/2026 11:28 AM
19	I think the biggest issue is people speeding during drop off and release. I think that at least once a week there should be a patrol car both am and pm monitoring.	4/7/2026 9:28 AM
20	I think a roundabout at the middle school will help a lot with traffic flow.	4/7/2026 9:17 AM
21	The roundabout!!! All of them have been so helpful in town if people know how to use them	4/7/2026 6:06 AM
22	Round a bout would be good at middle school entrance	4/7/2026 6:05 AM
23	Please add a round about at the intersection of Middle school road and 15th st nw	4/7/2026 5:23 AM
24	Right in, right out is best for the second problem as well. Even if they must install a roundabout on 15th. They will likely need one later anyway, so it will be useful for the future. Increases travel time minimally for a small percentage of the population who uses it.	4/7/2026 3:16 AM
25	The South parking lot issue there's a lot of concerns about traffic back up on 15th St. it seems that since we are getting into the habit of roundabouts that the best option really would be roundabout. It's clear that right now the way it currently is designed. It takes a long time if you're at the stop sign and you want to turn left the same can be said about if you're gonna turn right because there's always a constant flow of traffic on 15th St. being one of the highly used roads along with many other ones it just feels like why would you not consider a roundabout there just like we have everywhere else if that's the direction we're moving in. I do feel like all of the options. Need to have some sort of crosswalk for those students that are going to be traveling on foot, especially those that will need to cross traffic to go towards conifer Estates. Hopefully that all makes sense. The only other question in my head that I'm wondering is is if there's a way to put additional bike trail somehow that makes it easier for those that are on foot and or bike as well as possibly considering the pedestrian flashing sign similar to what is by BSU to cross to the university Heights Apartments. I know that there's cost to that and if we're moving forward with this project, the whole purpose was safety. To be honest, I wish we had more of those cross walks for example, I wish that there was one of those crosswalks on the midge Avenue and sixth Street in library Park, where even though there's a crosswalk people rarely stop for you to cross.	4/7/2026 1:39 AM
26	Crossing bridge. Longer right turn lane. Right in and right out. Other schools also need to have safety options. Getting to lincoln off of first street is horrible and unsafe for kids walking. Needs a couple stop lights.	4/6/2026 11:44 PM
27	Stop wasting our money and give back to the community	4/6/2026 11:17 PM
28	Round	4/6/2026 10:07 PM
29	Walking path farther towards target. So many kids walking on roadway with high traffic.	4/6/2026 9:57 PM
30	I am in favor of anything that can help traffic flow through the middle school pickup line at the end of the school day.	4/6/2026 9:43 PM
31	It's not safe sorry they don't yule. It is fine with out the round about. And it's wasting money	4/6/2026 9:33 PM
32	Roundabout on 15th Street would be help people needing to go left at peak times so that traffic won't back up	4/6/2026 7:40 PM
33	Possibly look into connecting the bus lot to the bus barn on 15th street and have busses exit there. Or some other type of exit from the school or bus lots to 15th street. Getting some type of second exit from the school besides only on middle school Dr would help with traffic congestion. Another option for the second exit would be making the trail from the north lot to 23rd street a road and require vehicles to exit that direction during school drop off/pick up.	4/6/2026 7:29 PM
34	Up and over va cross walk.	4/6/2026 7:12 PM
35	A roundabout at 15th and middle school road would be helpful	4/6/2026 7:03 PM
36	Crosswalk that exists from lot to soccer fields is not well seen for drivers heading south when traffic is backed up. Add roundabout in proposed intersection south of BMS.	4/6/2026 7:00 PM
37	I can't make a right hand turn into the N lot with my pickup truck if there is rltraffic turning out	4/6/2026 6:56 PM

	of the lot. The lot and turn from the road is too tight.	
38	Consideration for 15th street traffic, and bicyclist traffic	4/6/2026 6:45 PM
39	Cross walks need more visibility. Flashing lights or cross walk sings. Someone is going to get hit sometime.	4/6/2026 6:29 PM
40	Please for the love of Christ himself, give money to the library that just had to forcefully let their staff go instead of funding dumb idiotic projects. This has been fine for YEARS it doesn't need improvements. People leave early enough to drop their kids off. How are we this inconsiderate????????	4/6/2026 6:25 PM
41	The hold up on 15th street with traffic not being able to flow as fluidly resulting in backups even up to a potential round about. Especially with a large amount of busses going to that stop.	4/6/2026 5:56 PM
42	A stoplight at the intersection of 15th and Middle School Drive is much needed. During busy hours, trying to turn left onto 15th becomes nearly impossible and I have had to make a right turn instead and loop all the way around to the airport in order to get where I need to go. Traffic from the right (facing 15th from middle school drive) becomes almost constant during busy hours. A roundabout at that location *might* work but I feel it would get clogged with the constant stream from the west.	4/6/2026 5:49 PM
43	This is going to slow down traffic in these areas delaying buses.	4/6/2026 5:29 PM
44	Not interested in massively expensive round a bouts	4/6/2026 5:03 PM
45	Force traffic to turn right out of the middle school towards the roundaboutForce traffic to turn right out of the middle school towards the roundabout	4/6/2026 4:50 PM
46	Round about a at Middle school main lot	4/6/2026 4:46 PM
47	Roundabout all the way!	4/6/2026 4:37 PM
48	Roundabouts are smart and safe and easy, the community needs a class on how to use them tho	4/6/2026 4:27 PM
49	Not a fan of the "South Lots: Option A Roundabout" but was not given an option to rate it.	4/6/2026 4:27 PM
50	There was not a selection of how much I like the south entrance roundabout. I think that is the best option at that location.	4/6/2026 4:19 PM
51	I have assumed we would be talking about a roundabout at the 15th street intersection. What are the plans for this as a left in peak time is tough as well	4/6/2026 4:17 PM
52	The more pedestrian friendly design, the better. Avoid over designing for vehicles over people in an area that has a large number of turn movements 3-4 hours a day while school is in session.	4/6/2026 4:11 PM
53	Sidewalks on both sides please.	4/6/2026 4:01 PM
54	ENOUGH OF THE ROUND ABOUTS!!!!!!!!! We've seen people who have absolutely no idea what they're doing and it's been more dangerous than not. Take the people who gets stuck in the high school roundabout as an example. Holding up traffic because they're going THE WRONG WAY and I've seen more accidents in the round about by Beltrami electric then I've seen without it!!! We don't care for the roundabouts	4/6/2026 3:55 PM
55	All the roundabouts have been a great addition to the school's roadways as the flow of traffic has been much more efficient	4/6/2026 3:37 PM
56	An elevated crosswalk to go to the soccer/softball/baseball fields. People don't stop for pedestrians even with the crosswalk and flashing lights.	4/6/2026 3:30 PM
57	People understand traffic signals. Let's continue with something people are already familiar with. If there is no way to get by the roundabouts, then a pedestrian bridge. This may cost more financially; however, life is priceless.	4/6/2026 3:16 PM
58	Please connect these trails to the high school and gene dillion. Or at the least connect them to the trail by the intersection of Adam's and 15th. Also please consider a roundabout at the intersection of 15th and Adam's. This would help traffic backed up on 15th during these high use times.	4/6/2026 3:15 PM

59	There is no button to support the roundabout at the south entrances. I fully support that option as the best option	4/6/2026 3:10 PM
60	More lights at the round a bot	4/6/2026 3:01 PM
61	The trail ends at the middle school and for the runner I am it would be great if it was extended to 15th street. It's a busy road so running on middle school drive can be dangerous	4/6/2026 2:44 PM
62	I'm ok with round-abouts. Once people get used to them, they work wonderfully.	4/6/2026 2:42 PM
63	I have not seen Any issues at the crosswalk and I drive it several times a day. Many of the kids don't use it they just bolt across. Having a sidewalk on the west side would give kids a safe place to walk	4/6/2026 2:35 PM
64	I very much favor the roundabout and the right in and out. This area is pure chaos at pick up / drop off and soccer/baseball activities. It feels like built in guidance would be very helpful.	4/6/2026 2:24 PM
65	Need to reduce the long periods of time of no movement. Need a roundabout or right turn only.	4/6/2026 1:41 PM
66	Any more roundabouts to enter or exit the schools should be on the schools not the residents. City taxpayers should not be paying the burden for everyone again.	4/6/2026 1:32 PM
67	South option didn't allow for a vote to be made.	4/6/2026 1:29 PM
68	A single lane roundabout would be helpful in this intersection, I think. Or maybe a semi double lane like the one in front of the highschool that has designated turn lanes to the middle school. This would increase traffic flow for those not turning into the middle school. I'm not a planner or engineer, but what makes sense in my head as I'm southbound on middle school drive, staying in the far right lane to go straight to 15th, staying in the left lane to enter the round about and go to the middle school. Then going northbound, staying in the inside lane to enter the round about if I want to go straight towards target and staying in the far right lane if I need to turn into the middle school. I think this is very similar to the high school one….i would just suggest making the lane dived by a physical divider of some sort rather than just relying on signs or painted arrows. I use the roundabouts at the high school and at Anne Street and 71 multiple times every day, and the number of people who are in the wrong lane for the direction they need to go is terrifying. Learn from experiences from the citizens and do not repeat those designs as is again in another roundabout, please!!	4/6/2026 1:27 PM
69	Does a Roundabout at the middle school entrance meet warrants? Are we doing that just because of changes to right in right out or 3/4 access at the soccer field entrance?	4/6/2026 1:04 PM

COUNCIL AGENDA ITEM

Meeting Date: **April 27th, 2026 Work Session**

Action Requested: **Possible Future Water & Sanitary Sewer Extensions**

Prepared By: **Samuel C. Anderson, PE DPW/City Engineer**

Background:

Within the last year, the Beltrami County Highway Department has solidified some proposed construction dates for multiple segments of county roads that would allow for an opportunity for potential municipal water & sanitary sewer extensions. In the past, road reconstruction projects have been an opportunity to look at needed upgrades to existing infrastructure or possible new extensions due to the road replacement cost being covered by another entity which lessens the project cost for the city to extend, upgrade, or repair its own infrastructure under that same road segment.

As of the latest update to the County's 5-year Transportation Improvement Plan (attached Exhibit A), the following segments are planned for reconstruction in the next 2 years:

- Adams Avenue NW (CSAH 11) from 5th Street NW to HWY 2 – Planned for 2028 Construction
- Lakewood Drive NW (CSAH 42) from Irvine Avenue NW to Bemidji Avenue N – Planned for 2028 Construction

A couple other segments in the 3-5 year window:

- Carr Lake Road SE (CSAH 11) from HWY 71 to Paul Bunyan Drive SE (County Road 50) – Planned for 2029
- Bemidji Avenue N from Trunk Highway 197 (CSV Pharmacy) to Annebell Street NE – Planned for 2030

Project Estimates:

In anticipation of these upcoming county road projects, engineering staff hired Freeberg & Grund to assist with a feasibility report in order to have some more concise cost estimates for the various segments. Below is a recap of the project cost estimates (rounded to nearest $250K) from the preliminary engineering report prepared back in July 2025:

Adams Avenue NW (5th Street NW to HWY 2)

	Sanitary Sewer	Water Main
Total Estimated Cost:	$3,000,000	$4,000,000

Combined estimated cost for sewer and water on Adams Avenue NW = **$7,000,000**

15th Street NW (Adams Avenue NW to Middle School Drive) – under HWY 2 Bypass

Though the entirety of 15th Street NW from Adams Avenue to Middle School Drive is not currently programmed in the County's 5-year road plan, staff wanted to discuss the proposal of additional watermain looping under the HWY 2 Bypass to Middle School Drive. The water & sewer cost estimate for Adams Avenue NW includes the cost to extend services up to the 15th Street bridge based on the extents of the proposed county roundabout. The type of construction anticipated for the Adams Avenue project creates and opportunity to explore adding the extension of water main under the MnDOT highway at a more economical price. Exhibit D provides an overview of this project area.

	Sanitary Sewer	Water Main
Total Estimated Cost:	$ 0	$1,500,000

Combined estimated cost for sewer and water on 15th Street NW = **$1,500,000**

Lakewood Drive NW (HWY 71 to Bemidji Avenue N)

Lakewood Drive NW is a county owned segment that currently runs from HWY 71 to Bemidji Avenue on the north side of the Bemidji city limits. Roughly half of Lakewood Drive is programmed for reconstruction, but the estimates shown below assume extending water & sewer from Bemidji Avenue N to HWY 71. This would include roughly $500,000 in road costs that the city may need to cover on Lakewood Drive from HWY 71 to Irvine Avenue NW.

Staff have received some interest from developers on or near this corridor for possible expansions that could benefit from municipal services. Those locations are denoted on Exhibit E.

	Sanitary Sewer	Water Main
Total Estimated Cost:	$2,000,000	$1,500,000

Combined cost for sewer and water on Lakewood Drive NW = **$3,500,000**

Summary:

	Sanitary Sewer	Water Main
Adams Avenue NW	$3,000,000	$4,000,000
15th Street NW	$ 0	$1,500,000
Lakewood Drive NW	$2,000,000	$1,500,000
	$5,000,000	**$7,000,000**

In order to match the County design & construction schedule, staff would look to begin a consultant selection process based on the desired direction of the Council and have those proposals back for Council approval in the next month or so. Project design is estimated to be completed by end of 2027 for an anticipated Q1 2028 project advertisement.

Recommendation

Staff are seeking Council input and direction on project interest for potential future water and/or sewer extensions.

Exhibit A

Beltrami County 5-Year Transportation Improvement Plan

6/17/2025

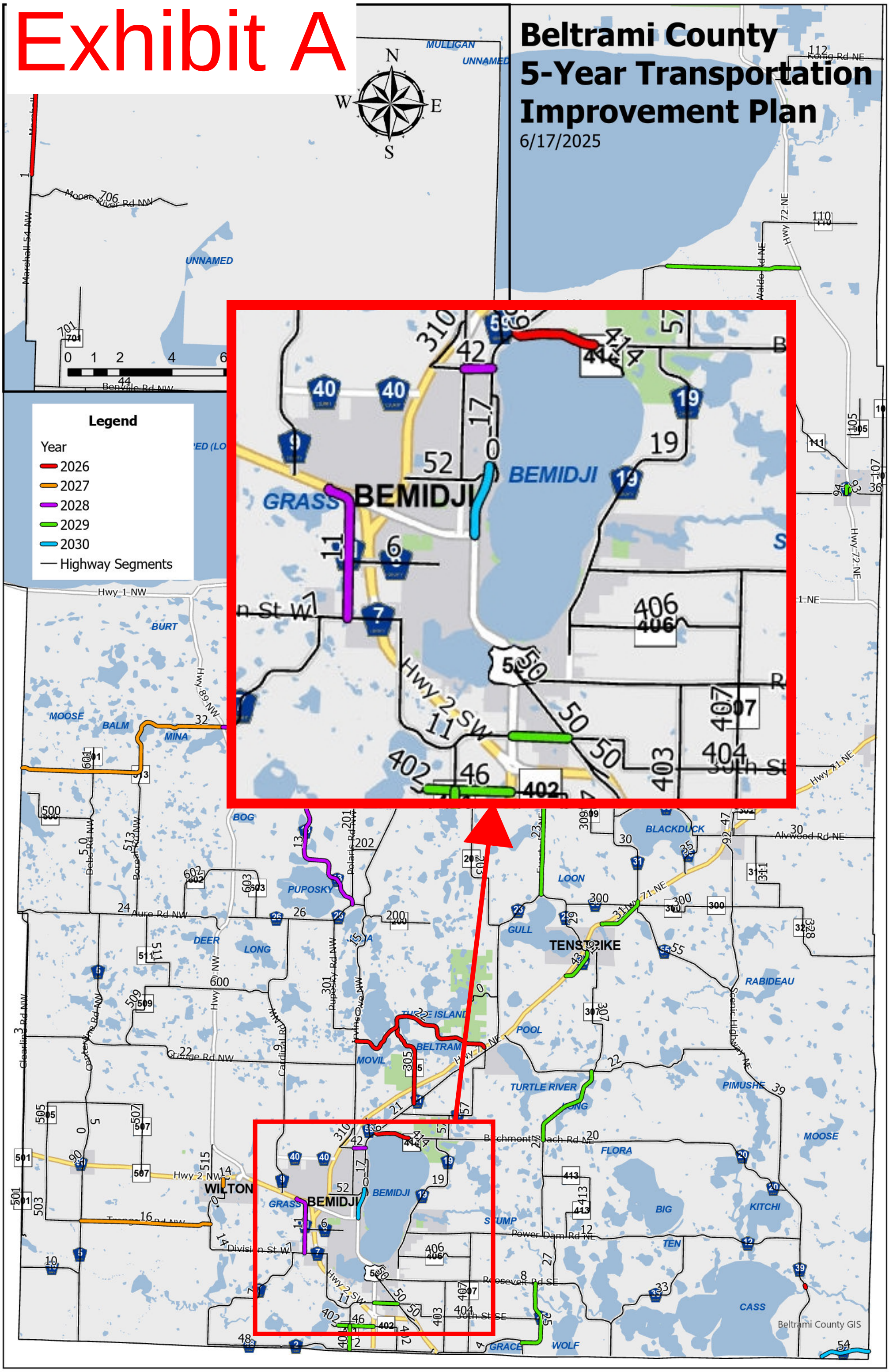
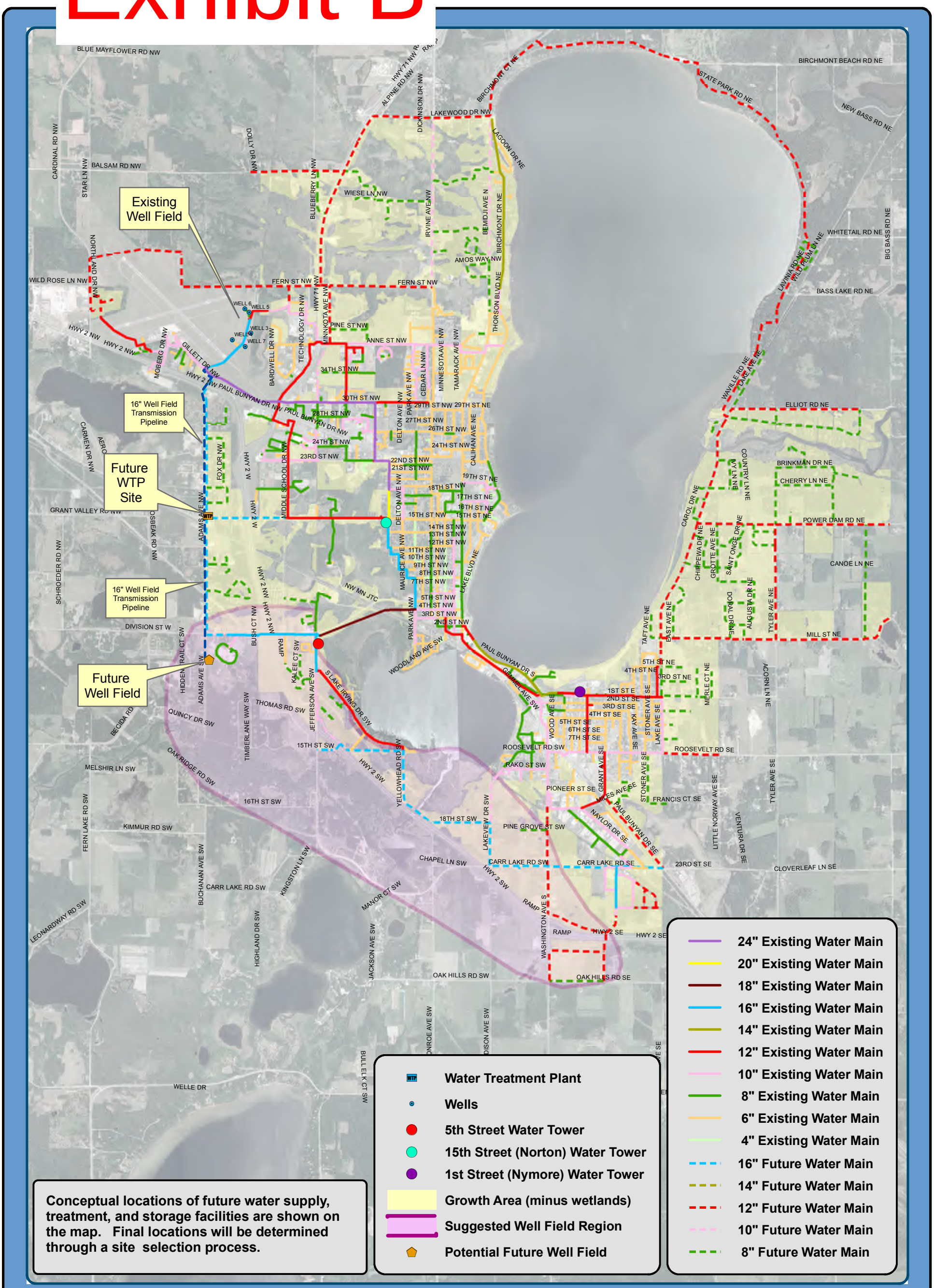


Exhibit B



Date: March, 2009 --- File: \\bemidji\maps\

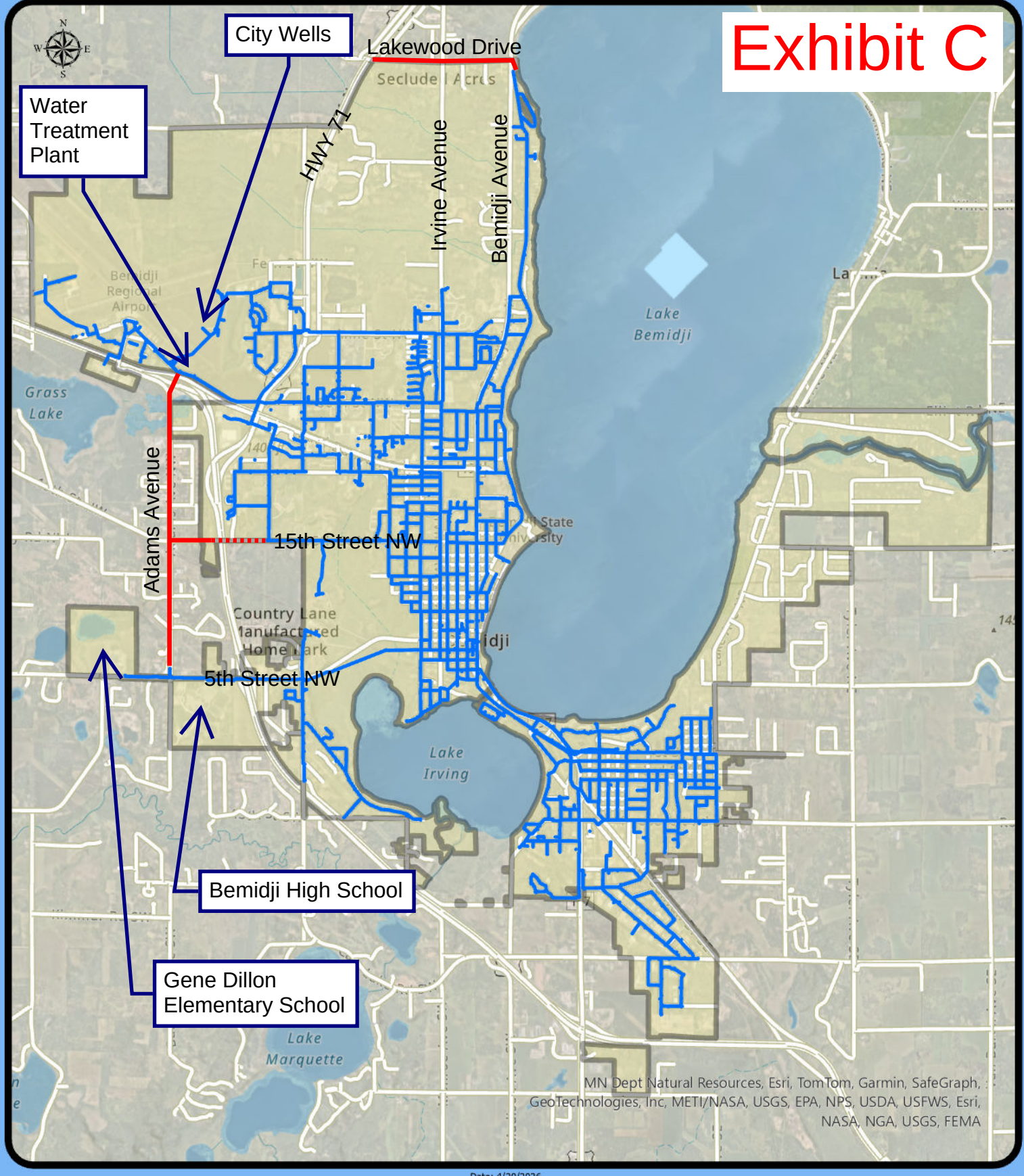
City of Bemidji Water Distribution System

Figure 9.1: Future Growth Improvements
2030 Planning Period Population = 21,750 people MDD = 5.0 MGD

City of Bemidji

AE2S
Advanced Engineering and Environmental Services, Inc.

Exhibit C



Date: 4/20/2026

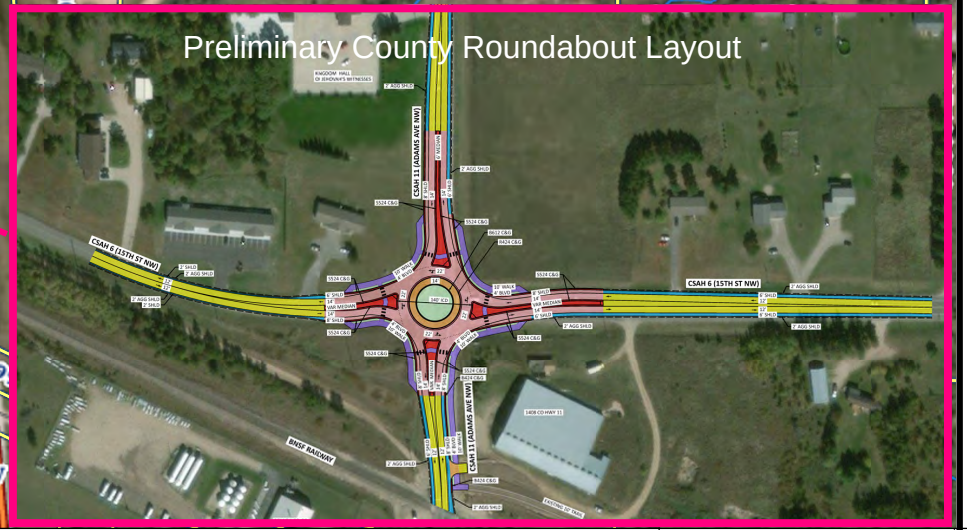
City of Bemidji Water Distribution System

Exhibit D

Proposed water & sewer extensions with Adams Avenue NW reconstruction

Potential project end point

Proposed water only extensions to loop watermain to Middle School Drive NW



15th Street NW - Overview Map

1:9,028

Date: 4/21/2026

This map is not a substitute for accurate field surveys or for locating actual property lines and any adjacent features.

Bemidji First City On The Mississippi

Exhibit E

Proposed water & sewer extensions with Lakewood Drive NW reconstruction.

Potential Housing Development - Owner interest in expanding constructing 230+ units with municipal services over phased plan

Secluded Acres Trailer Park - Owner interest in expanding with add'l 15-20 units with municipal services

These data are provided on an "AS-IS" basis, without warranty of any type, expressed or implied, including but not limited to any warranty as to their performance, merchantability, or fitness for any particular purpose.

Lakewood Drive NW - Overview Map

1:9,028

Date: 4/21/2026

This map is not a substitute for accurate field surveys or for locating actual property lines and any adjacent features.

Bemidji First City On The Mississippi